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The Spiritual Crisis of the Scientific Age

G. D. YARNOLD

*Warden of St Deiniol's Library, Hawarden
Sometime Lecturer in Physics
in the University of Nottingham*

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FOREWORD

THIS book has grown out of numerous lectures, or courses of lectures, which it has been my privilege to give over the past six or seven years. It took shape, in the form in which it is published, during the summer of 1956; and in revising it for the press I have seen fit to make remarkably little change. This circumstance may be an indication that some degree of maturity has been reached both in content and in expression; though I am painfully aware that a less favourable interpretation could be placed upon my disposition to alter very little of what I have written.

It may be of value to set down the main points of the thesis quite briefly at the outset. I cannot help feeling that no good purpose is served by considering the relationship between Christianity and the natural sciences as a conflict; even as a conflict to be resolved. At the expense of over-working a word, I would rather regard the modern world as passing through a *crisis* of far-reaching proportions; which is the direct consequence of its inability to assimilate a vast increase in human knowledge and to direct rightly a prodigious growth of technical power. As I see it, the crisis of the scientific age is essentially a testing of our whole spiritual being—and, at every level. In the first place scientific discovery poses its own particular intellectual problem, that of *understanding* the universe of which we are part; and I have suggested that scientific explanation, 'from below', must be supplemented by something far wider and deeper, interpretation, 'from above'. Until that is accomplished our hold upon essential Christian truth is weak and often ineffectual. The crisis of understanding leads logically to a crisis of *faith*, affecting not only the thinking members of our society but the rank and file also. Western civilization above all things needs to recover its hold upon the Christian verities. But because of our wider horizon the older statements of the faith stand in need of fresh examination and perhaps of more modern expression. Lastly, there is the vital need to bring the whole range of the technical activity of the twentieth century under the searching standard of the Christian

doctrine of man. And because we grasp greedily at the fruits of technical power, while failing so often to consider the spiritual sanctions under which human life has been placed, we are passing through what I have called a 'crisis of *living*', the tempo of which is constantly rising. Inevitably for any thinking man a gigantic question mark stands over the future.

In effect, what I have written is three essays, dealing respectively with the three aspects of our spiritual crisis. The link between them is the logical connection which exists between knowledge, belief, and practical activity. Unconventional in form though this book undoubtedly is, I have felt it to be the most effective means at my disposal of focusing attention on the present relationship of the natural sciences and the Christian faith.

Finally, my thanks are due to my wife who, over a long period, has assisted materially in clarifying the thesis which is here presented, and who has patiently read and criticised what I have written.

G. D. YARNOLD

St Deiniol's Library
Hawarden
November 1958

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CHAPTER I

The Order of Nature

A CRISIS OF UNDERSTANDING

THE philosophical tradition of the western world goes back to the preoccupation of the Greeks with wisdom. Its origin lies in the questioning mind. The religious tradition of the western world must be traced back to the Hebrews; and its origin lies not in any initiative of men, but in a response to the initiative of God. The Hebrew was a believing person, a man of faith. He did not ask questions of the world around him. His genius rather was to respond to the words and mighty acts of God, culminating in the fact of Christ. In the classical formulation of the faith of the Catholic Church, the Hebrew and the Greek contributions became fused into a single system of thought and belief. We are the heirs of this tradition. But to each generation, as it succeeds to its inheritance, there falls the necessity to examine afresh, and to some extent to remake, the synthesis of the Greek and Hebrew elements. The problem of the relationship between philosophy and theology is the problem of adjusting and integrating the Greek and the Hebrew in each of us. For in virtue of our education each one of us, to a greater or less extent, has acquired the questioning mind; and in virtue of our religious upbringing and spiritual experience each one of us, to a greater or less extent, is a man of faith, a believing person. The problem of adjustment and integration to which we refer, however, is a wide one: too wide possibly to be treated as a single problem. In any case its subdivision is made necessary by the subdivision of philosophy

itself into what are now wholly separate branches, involving totally dissimilar techniques.

The branch of study which is known as 'natural philosophy' remained for centuries a neglected corner of the garden of knowledge. Its cultivation required tools which were not yet available. The main body of philosophers lost interest in it, and indeed even disowned it; with the result that natural philosophy is almost entirely a development of recent times. The sixteenth and seventeenth centuries witnessed a great revival of interest in the processes of nature, and since that time progress has been at an ever faster rate. Knowledge has increased so rapidly that further subdivision of the field of enquiry has been unavoidable. It has become virtually impossible for a single mind to keep pace with the development of the subject as a whole. Hence the various departments of natural science as it is studied today; each science a separate discipline and a separate body of knowledge: each science tending to become more and more a narrow specialism; each science virtually out of touch with the general philosophical tradition as pursued by the non-scientist. Nobody would deny that this specialization and lack of contact have resulted in serious loss on all sides; not least in the absence of any integrated appreciation of the philosophical field as a whole. Indeed even among practising scientists the term 'natural philosophy' is no longer in common use at all. Where it is used, it stands for a single branch of science, which elsewhere is called 'physics', and concerns itself only with inanimate matter, divorced from any aspect of the study of 'life'. Yet if the work of the scientists is relevant at all, there can be no question of the need to relate the sciences more closely to one another, and natural philosophy as a whole to the general philosophical and theological tradition on which our western civilization rests.

It is often remarked that the origin of natural science lies in a Christian tradition. It is true, as Smethurst¹ has pointed out, that the presuppositions of all scientific investigation rest in some measure on the Christian faith, and that the qualities which go to make a good research worker are among those inculcated by the Christian religion. It would be wrong, however, to infer that

modern science could not have had its origin elsewhere; and indeed Smethurst has been criticized^a on this very ground. The conditions which make possible any human advance are usually exceedingly complex, and often the most that the historian can do is to put his finger on one or more of the relevant factors of the situation. Undoubtedly, the Christian tradition of Western Europe was *one* of the conditions which favoured the development of the natural sciences, as it also favoured other movements of the human spirit towards greater freedom. But though the origin of the scientific movement must be traced back to the end of the scholastic age, its full flowering quite definitely belongs to the post-Reformation period. In some ways this fact appears to be more significant; for the Reformation attitude was essentially one of questioning the validity of a received tradition, and has its parallel in the distinctive approach of the scientist to the subject of his study. However much we may value the Catholic tradition of Christendom with its ordered worship and its systematic theology, we cannot deny that prior to the Reformation there was rather too great an appeal to the authority of the Church and too great a tendency to accept the dictates of authority without question. In no other way can we account for the manifold abuses which the Reformation set itself to cure. Running exactly parallel with this was the appeal to the authority of Greek antiquity in matters of philosophy, even of natural philosophy, and the tendency among the scholastics to accept such intellectual authority without question. In no other way can we account for the travesties of natural knowledge which were allowed to pass unchallenged during the medieval period. Sooner or later, a revolt had to come against authority, both spiritual and intellectual. The one revolt issued in the Protestant Reformation, the other in the modern scientific movement. The rumblings of both these revolts against authority can certainly be heard two centuries before the date commonly assigned to the Reformation; but that both these sets of events belong together cannot reasonably be doubted.

✓ There appears then to be considerable common ground between the scientific attitude to nature and the Reformation

attitude to theology. If it is true that the origin of natural science lies in the Christian tradition, as has been asserted, it is true also that modern science is particularly at home in the *post-Reformation* Christian tradition. The questioning of the medieval theological tradition took the form of a rediscovery of the writings of the early Fathers, and more radically of a deliberate return to the study of the Old and New Testaments in the original languages. The distinctive Reformation attitude is therefore to let the Bible speak for itself. Once more the Hebrew Prophets were heard in their challenging freshness; once more, the apostolic witness was valued for its authentic purity. The Bible itself became the supreme authority by which the doctrine of the teaching Church must be proved. In the words of the sixth article, 'Holy Scripture containeth all things necessary to salvation; so that whatsoever is not read therein, nor may be proved thereby, is not to be required of any man, that it should be believed as an article of the Faith, or be thought requisite or necessary to salvation'. The corresponding questioning of the medieval view of nature and of the authority of antiquity in this matter took the form of letting the *facts* speak for themselves. Observation and experiment took the place of fable and *a priori* reasoning. What could not be known by the senses and tested by recourse to experiment was no longer to be received as a true account of the order of nature. The liberation of theology and the liberation of natural philosophy went hand in hand. Both were parts of the same intellectual and spiritual movement by which an awakening world threw off the shackles of the immediate past.

Yet in spite of common ground and common ideals in the pursuit of truth there still remains a problem between modern science and modern theology. How does this come about? Partly because at times the theologian has interpreted the sacred books of the Bible in too literal a sense, assigning to them an authority in matters of fact which their writers would never have claimed for them. Partly also because the scientist, rejoicing in his new-found technique for the pursuit of natural knowledge, too easily made the assumption that reality consists solely in what can be observed directly with the senses. Partly because it was too

readily assumed that the conceptual models postulated by the scientist for the explanation of the facts of nature partook of the same degree of reality as nature itself.³ If modern theology and modern science set off in step with one another in questioning the authority of a received tradition, it soon became clear that their tempers were by no means the same. Science quickly showed itself to be more ruthless and radical in its questioning of tradition. In a sense it could afford to be so; for the corpus of facts on which it builds is endlessly reproducible and consequently lies ready to hand in the present. By contrast the corpus of facts on which theology must build lies principally in the records of the past, and, except in so far as theology is grounded on the continuing spiritual experience of the Church, the facts themselves are unique and consequently not reproducible. Apart from the exception just noted, theology is by its nature backward-looking. While it may question a particular tradition of the more recent past, it cannot disregard tradition as such, if it is to be true to itself. The sciences, simply because the facts which they study are always available in the present, and an observation made *now* has an authority which no observation recorded in the literature can possibly have, readily fall into the habit of treating any tradition with only slight respect. This tendency is no doubt enhanced by the necessary scientific habit of discarding hypotheses or theories which no longer accord with the ever-widening range of facts. In the final result the temper of the scientist is inevitably more ruthless in its attitude to what it has received from the accumulated wisdom of past ages. Divorced as it quickly became from any real interest in the problems of metaphysics, modern science came gradually to exclude from its world-view just those elements which natural philosophy in its wider sense shared in common with the total philosophical-theological structure of Catholic faith and thought. We shall see later that 'explanation' in the scientific sense of the word came to have an altogether narrower meaning than it has for the Christian thinker. This more narrow meaning is quite legitimate within the restricted field of scientific enquiry, provided that it is recognized that the field of enquiry is so limited and that the scientific account

of nature requires to be supplemented by due consideration of the metaphysical problem which underlies all existence. Herein lies the real issue between modern science and Christian theology. Neglect of these very considerations is the root cause of the spiritual crisis of the scientific age, in so far as this is a 'crisis of understanding'.

It is sometimes asserted that the sciences are concerned only with what is general, and not at all with what is particular. Probably no scientist with any understanding of the distinction in question would be inclined to deny this statement. But the assertion would be equally true if made of any other branch of philosophy. Any rational study, with the possible exceptions of history and geography, is concerned with general rather than with particular statements. The normal method of study in the secular subjects is to consider classes of things, events, actions, or ideas, with a view to drawing out certain observable similarities, and to making general statements which are true for all the members of the class under consideration. The distinction between the sciences and other rational disciplines is solely one of subject-matter and of method. The sciences concern themselves with those events of nature which are both directly observable and clearly reproducible, and which consequently are amenable to general treatment and rigid formulation. The method of the sciences is observation followed by inference. This much is true of all the scientific disciplines without exception. Apart from such branches of science as astronomy or geology, however, the facts which it is desired to observe are not directly available to the student without some previous manipulation of the material, or some interference with nature itself. That is to say in general that it is necessary in most scientific work to impose certain selected and arbitrary conditions of an artificial character on the material under consideration—in other words to perform an experiment. The natural world is thereby made to answer particular questions which are put to it by the experimenter, who then employs the method of observation and inference to arrive at general conclusions. The fact that an experiment is made (and most scientific knowledge would be unobtainable apart

from experiment) imposes a strict limitation on the general conclusions. They are valid within the context of the experiment and the experimenter. They state the general kind of results to be expected from experiments of a particular type. If the object of the experiment is to observe certain numerical quantities, the general conclusions relate to these measurable aspects of nature, and to nothing else. Natural history is a purely observational and descriptive activity, so long as it remains natural history. It tells us something of the forms and habits of plants and animals in the state of nature. As soon as the observer begins to make experiments, however, his subject becomes immediately analytical and consequently more limited. Again the conditions of the experiment limit the validity of the conclusions. The experiments of the biologists, strictly understood, do not allow us to draw general conclusions of unlimited validity about living organisms. They allow us to draw conclusions about what happens to particular specimens of living, or previously living, matter when they are subjected to certain conditions. It is this realization which lies at the basis of Raven's⁴ plea that more attention should be given by biologists to field-work, so that the inherent narrowness of work carried on in the laboratory may be corrected by the wider view of living nature. How far it may be possible in fact for science to transcend the limitations which the technique of laboratory experiment imposes upon its general conclusions is strictly outside our purview. Myself, I should incline to the view that the sciences are essentially selective, analytical, and limited; and must remain so. It seems to me that their function is to 'explain' the facts of nature from 'below', so to speak; the more complex (in nature) in terms of the less complex (in nature). But having done so, scientists must then be ready to accept the limitations to which their general conclusions are unavoidably subjected; and they must be prepared to collaborate with men who have interested themselves in the larger issues, so that the general conclusions of the departmental sciences may be subsumed in the deeper understanding of a true 'natural philosophy'. If this is done, and there are some indications that the process has already begun, we may hope one day to see an authoritative

work which does for natural science what Toynbee⁵ has done for history and the humanities. Not all historians and philosophers of course will agree with the point of view to which Toynbee's monumental study leads⁶ him. In the nature of the case this can hardly be otherwise. But probably the majority find themselves in general sympathy with the attempt to trace out laws of wide generality in the historical movements of men and nations, for which Toynbee is justly famous. Something of comparable magnitude and significance has been attempted by Heim⁶ for natural philosophy. Again general agreement is not to be expected at this stage; but that the task has already been essayed from one particular philosophical and theological angle is a significant sign of the times.

Any rational study must have a specified aim and a method or technique by which advance is made; and it must be able to show some positive achievement. Those who are professionally committed to a subject of study are usually in a position to state their aim, their method, and their technique. They are always ready to announce the positive achievement which their studies have contributed to the general advance of human knowledge. More seldom, however, do they stop to examine the philosophical basis on which this achievement is erected; and this in itself is not unnatural. It usually remains for the onlooker to observe that the achievement itself rests upon the truth of certain fundamental hypotheses, which are not always clearly laid down in advance, nor even perceived in retrospect, by those who are working on the frontiers of knowledge. We have already examined somewhat briefly the aims and methods of the sciences, and the limitations which are consequently imposed upon their general conclusions. We must turn now to consider the fundamental hypotheses which underlie all scientific study; and in doing so we shall find yet another point of contact with the philosophical-theological outlook of Christianity, at least in its orthodox form. While some of the more radical among philosophers have felt themselves obliged to adopt a solipsist view, and others have followed the path of idealism, natural scientists from the very first have adopted the plain man's common-sense point

of view about the external world. They have assumed that the world of the senses is a real world; that it possesses a reality of the same kind as they themselves possess. It is hardly likely in fact that the man of science would devote his time and energy and enthusiasm to the study of nature if he did not instinctively assume the real existence of the external world. The basic philosophy assumed by the scientist is the philosophy credited to Dr Johnson when he ran his foot into a stone and convinced himself of the brute fact of the stone. But as the history of philosophy shows all too clearly, it is not possible to get past the doctrine of 'cogito, ergo sum' purely by the processes of rigorous thought. An act of faith of some kind is necessary between this attitude and the attitude which gives any meaning or incentive to the study of natural phenomena. The ultimate hypothesis of the sciences therefore is the real existence of the external world; and the making of this hypothesis is itself an act of faith, though for the majority of men not a difficult one. The hypothesis of the real existence of the external world, however, is not a *sufficient* basis by itself for the pursuit of natural sciences. The external world is apprehended through the five senses. Do these constitute a valid means of perception? It is by-passing the issue to attempt to answer this question in terms of the physics and chemistry of the sense organs and the nervous system. The real issue lies in the interpretation by the whole self of the sense signals, whatever they are, and however they are received and conveyed to the brain. For in principle, would it not be possible to assume the real existence of the external world, and yet to assert the partial invalidity of the means of perception? Undoubtedly the scientist is unable to accept the equal validity of all five senses. For instance a visual observation of a thermometer is regarded as a more reliable indication of hotness or coldness than is the direct sense of touch. That this should be so is due to the fact that in practice visual observations are found to be more consistent than any other. Experimental physics at its most refined stage relies entirely on visual observation. The other senses therefore are considered to possess a limited validity. They are satisfactory for rough and ready observations but not

for exact purposes. But if four of the five senses are accorded a limited validity, by what canon of logic can an absolute validity be accorded to the fifth? By none whatever. Again it is an act of faith. 'Seeing is believing'—or so it is supposed. In addition then to the fundamental hypothesis of the reality of the external world, there is the subsidiary hypothesis of the validity, in a limited degree, of all sense data and, in an absolute degree, of the sense of sight. Otherwise there could be no investigation of the natural world. But the necessity of the hypothesis for practical purposes does not make it any the less an hypothesis. The basis of all scientific work therefore is the hypothesis that matter has a real existence; and of all exact scientific work, that visual observation is a completely valid means of attaining accurate knowledge of matter.

It is not too fanciful to suggest that we have here a resemblance between the natural sciences and Christian theology as an intellectual system. The agnostic, who is a kind of spiritual solipsist, is simply a person who refuses to make the fundamental act of faith, without which religion is a closed world. In no sense can we *prove* the existence of God, though a great variety of reasons can be advanced in support of the view that God exists. The whole structure of theology, just as much as that of science, rests therefore on an unproved hypothesis—the existence of God. This is the fundamental hypothesis; but again there is a subsidiary hypothesis. For it would be possible in principle to hold that, though God exists, yet we have no valid means of knowing Him, that there can be no valid communication with the spiritual world. Once again advance is only possible by an act of faith. The Christian believes that God has spoken unmistakably through certain facts of history, and that man can know Him. He believes, moreover, that in the realm of grace God still indwells and influences those who respond to Him. The possibility of revelation and grace, the possibility of contact and communication with the spiritual world, this too is hypothesis. For some men the hypotheses of Christianity seem to be incomparably more difficult to make than those of science. This fact in itself should help the Christian to realize that the existence of God

and the possibility of His self-revelation are indeed hypotheses, however convinced he may be in his own mind of the truth of the Christian religion, and however completely he regards its tenets as verified in his own experience of life.⁹ Nothing is to be gained by minimizing the difficulties of the fundamental acts of faith on which the whole theological structure stands. Here as in the sciences we must recognize that unproved hypotheses, difficult ones rather than obvious ones, are the foundation on which Christian theology is raised. In fact, no activity of any kind can even begin, no knowledge of the outside world, no contact between person and person, without the act of faith which is involved in the acceptance of an hypothesis which is not proved. In this respect theology is not different from other human activities or intellectual systems. To recognize this does not put Christian theology merely on the same level as physics and chemistry, and astronomy, and biology, however; for its claims are altogether wider. But to realize the truth of our contention that there is a basic resemblance between theology and other intellectual systems, which involves the step of acting existentially on an unproved hypothesis, is to go some way from the Christian side towards meeting and understanding the thought of the scientists, and is some advance towards a satisfactory world-view which does justice to both sides.

What then is the position of a Christian who is also a scientist? Sometimes, regrettably, he is a man whose mind is divided into two water-tight compartments. For it is possible to be a competent scientist and even to produce original work of importance; to be also a practising Christian and to hold the full faith of the Church; and yet never to allow the two sets of ideas to make any effective contact with one another. Indeed, there was a time when a Christian who was also a scientist had to be content simply to hold on to both sets of truths, rather grimly, because he was aware of an unresolved conflict between them. These unfortunate conditions are quickly passing away, however. In the mind of the man who is both Christian and Scientist the two fields of study and experience must be allowed to make contact: and the same is true of any Christian who seeks to keep abreast of modern

thought. Man is both a physical and a spiritual being. In him the questioning mind and the believing person meet. In man the conflict between science and Christian theology, in so far as it is a true conflict, exists and must be thought out. We have said already that the fundamental hypothesis of science is the reality of the external world, and that of theology the existence of God. If a man has a foothold in both worlds, the world of science and the world of theology, the two fundamental hypotheses stand side by side. The same person must make them both; and at the same time. The debate between science and theology seems to resolve itself therefore into two questions: (1) Are the two fundamental hypotheses mutually compatible, or do they necessarily exclude one another? and (2) If they are mutually compatible, which hypothesis is paramount? The answer to the first question seems to turn on the 'overtones' which we associate with the word 'real'. A thing which is real is a thing which exists. Philosophers commonly draw a distinction between necessary existence and contingent existence; or in other words, between that which exists in its own right and that whose existence is derivative. Thus we must distinguish between different orders of reality. If we were to suppose that the reality of the external world and the reality of God belonged to the same order, and to claim that both belonged to the realm of necessary existence, we should have to say that the fundamental hypotheses of science and theology were logically incompatible, unless indeed we were prepared also to forfeit the chance of finding any unity whatever. But if we are prepared to say that one of these realities exists in its own right and that the existence of the other is derivative, then the two hypotheses are compatible. We then ask, Is the fundamental scientific reality dependent upon the fundamental spiritual reality? or Is the fundamental spiritual reality dependent upon the fundamental physical reality? The question is whether the external world is created by God, or whether spiritual perceptions are ultimately illusory. For the Christian there can be only one answer. The ultimate reality is God. The existence of God is necessary. He exists in His own right. God is the Creator of all else that exists. All other

existence is contingent and is derived from Him. The external world belongs to a created order. Its existence is therefore contingent and is derived from God. There is no need for the Christian to attempt to deny that the external world has a real existence. But God is the Ultimate Reality from Whom all else that exists is derived by His free creative act. In what follows we shall not be concerned to argue this question of paramountcy any further. We shall take it for granted that it is possible to effect a synthesis of Christian theology and natural philosophy, and so to present a unified picture of the order of nature. We shall claim that for this purpose there must be both give and take. We shall have to consider therefore what are the implications for theology of accepting the facts of science, and what are the implications for natural philosophy of accepting theological truth. But first of all we shall have to set down what are the essential facts of the external world as the scientist sees it, and what are the essential truths of the spiritual order as it is revealed by the acts of God in history. In doing this we shall discern two patterns of truth, one physical, one spiritual, both rational. We must set these two patterns side by side and see where the one supplements the other, and in its turn is supplemented by it. This will enable us to see what are the essential contributions which Christian theology and natural philosophy have to make towards a unified view of the order of nature. Our goal must be to find an adequate theology of nature.

THE PATTERN OF THE EXTERNAL WORLD

We have already made it clear that in approaching the study of the external world the scientist, either consciously or more commonly unconsciously, makes certain assumptions which are in some sense analogous to acts of faith. These are sometimes referred to as the presuppositions of natural science. We have suggested that the *first* of these presuppositions is the hypothesis of the real existence of the external world; and the *second* the assumption that through the senses, and supremely through visual observation, we are capable of valid perceptions. But we

have also admitted that the validity of the general conclusions of scientific study may be limited by the fact that experimentation necessarily imposes artificial conditions on the portion of the natural order which is under examination. Nature is made to answer specific questions put to it by the experimenter, and the answers necessarily reflect the context of the experiment and the existence of the experimenter. The analytical methods which are necessary to the scientific study of living, or previously living, matter unavoidably preclude the possibility of full knowledge of an organism considered as a living whole. Knowledge gained in the biological laboratory must be supplemented and interpreted by observation in the field. Moreover, when we construct models or theories to enable us to understand the processes of nature, we are not entitled to suppose that such models or theories partake of the same degree of reality as the external world itself. We cannot normally assume a one-to-one correspondence between the conceptual and the actual. With these limitations, however, we are justified in claiming that the methods of the sciences give us real knowledge of a real external world. The *third* presupposition of natural philosophy is therefore that within limits the human mind is a reliable though not an infallible instrument for the study of external reality.

In his book 'Modern Science and Christian Beliefs' Smethurst⁷ also has given some consideration to the presuppositions of the sciences. Basing his discussion on a quotation from Einstein and Infeld, he lists the following three presuppositions: (1) Belief in the orderliness of the universe, (2) Belief in the principle of causality or intelligibility in the natural world, (3) Belief in the reliability of human reason. It will be observed that both Smethurst and the authors from whom he quotes lay stress on the word 'belief'. We also note that Smethurst's 'reliability of human reason' is roughly equivalent to the third presupposition which we noted above though no reference is made to the limits of its validity. Apart from this measure of agreement there is a pronounced difference between our point of view and his. No doubt Smethurst would have admitted that the real existence of the external world and the validity of sense perceptions are

presuppositions which necessarily underlie the three which he has listed. The important difference in the two points of view is in regard to the status to be accorded to (1) Belief in the orderliness of nature, and (2) Belief in the principle of causality. As regards (1) the point at issue is this: How did the first scientists come to hold any belief at all in the orderliness of nature? Did they say to themselves: 'The world of nature was created by God. God is rational. Therefore nature must be orderly. Hence we can investigate it scientifically.' This is what Smethurst's view implies—that modern science grew straight out of Christian belief in God. Or had these early men of science already noticed a certain orderliness in nature, from the moment when they first opened their eyes⁶ upon it? Such orderliness as the succession of night and day, the growth and ripening of crops, the falling of heavy bodies, etc. I cannot help thinking that they had not only noticed these things, and many others like them, but that their intellectual outlook on the external world was already conditioned and coloured by such experience before ever they began even the simplest scientific investigation—in spite of any belief in magic or any superstition which may have been held uncritically alongside this simple but obvious recognition of the orderliness of nature. We are not splitting hairs. The point is one of some importance. For if our contention is justified, the orderliness of nature is not a belief so much as an already recognized fact which all further investigation of nature tends to corroborate. In opposition to those who favour a subjectivist approach, we must assert that the orderliness of nature is something which already exists *apart* from the observer. It is part of the given pattern of the external world which is discerned even by pre-scientific observation, and which is seen more fully as science advances. As regards (2), the principle of causality, it is only necessary to remark here that the word 'causality' means entirely different things for the late medieval thinker grounded in scholastic philosophy, and for the experimental scientist who recognizes orderly sequences of events such that event B is always preceded in time by event A, which is therefore said to be the (antecedent) cause of event B. So far as the experimenter is con-

cerned this too is part of the empirical fact of the external world, at least as far as events on the large scale are concerned. Causality in the scientific sense of the word is part of the given pattern of the external world, though at a later stage in scientific development the idea is extended beyond antecedent causality proper to include formal explanation of phenomena in terms of theoretical concepts. We appear to be justified then in recognizing three basic presuppositions only, which are: *first*, the reality of the external world; *second* the validity of sense perception; and *third* the reliability of the human mind within certain limits.

The orderliness of nature, obvious to everybody quite apart from detailed scientific investigation, is the first point to notice about the pattern of the external world. Such simple sense perceptions of the world as may be made without the use of special apparatus are purely qualitative; i.e., they are confined to the *direction* or *sense* in which an observed change takes place, no measurements of quantity being yet possible. Natural events on the normal or large scale, therefore, show a qualitative reproducibility or regularity which extends to the results of simple experiments. In the physical sciences, however, we are not content with merely qualitative observation. By the use of simple pieces of measuring apparatus, such as a measuring rod and a clock, simple quantitative observations become possible, even without recourse to experiments which create artificial conditions. For instance observation of the instants of sunrise and sunset over a period of years reveals a simple quantitative regularity in the variation of the hours of daylight. Simple observations of falling bodies, though difficult for technical reasons on account of the short time intervals involved, would show an approximate regularity in the time of fall from rest over a measured distance. When such observations are extended by the devising of deliberate experiments the principle of quantitative reproducibility or regularity is found to be applicable throughout the whole range of physical phenomena on the large scale. But, we must ask, what are we actually doing when we make such observations? What is it, strictly speaking, which is reproducible? Consider for instance the observation of a falling

body in greater detail. Stones of various sizes are to be dropped from a point A on a high bridge and are subsequently seen to strike the water below at a point B. We are equipped with a clock of some kind. In practice a delicate electric timing device would be desirable; but in order to bring out the essential point of the observation let us suppose that our clock is a simple pendulum. The stone is released from A exactly as the pendulum passes through the mid-point of its swing. As the stone falls we count the swings made by the pendulum, and observe the number of swings made by the pendulum before the stone reaches B. For simplicity let us suppose the number of swings is integral. What we discover is that the number of swings is the same whatever the size of the stone. The quantitative regularity consists in the identity of the number of swings. The passage of the pendulum through the vertical position is the coincidence between a moving line and a fixed line. We are making what is called a 'pointer reading'. The movement of the stone is from point A to point B. Here are two more pointer readings. The regularity which we observe is a regularity in the relationship between different pointer readings. We define the interval between two pointer readings at two different points in space as an interval of length, and in principle this is measurable with our measuring rod by placing the rod end to end a number of times over the interval of length (though in practice this would be a difficult operation). We define the interval between successive pointer readings of the same two lines (the pendulum and the vertical) as an interval of time. What we have discovered is therefore that stones of different sizes all fall freely through equal distances in equal times. By employing a different pair of points C and D, in place of A and B, and the same pendulum clock and the same measuring rod, we could investigate how the time of free fall of any stone depends upon the distance of free fall; and this would be the next step towards discovering a more general regularity, the law of gravity. But the point to notice here is that any such regularity, and any such law, is a relation between *numbers*, which themselves are derived from pointer readings. What we have seen here is true throughout the whole range of

physical science. The laws of physics are general statements relating pointer readings which are made in a specified manner. Being relations between numbers, they are consequently expressed in mathematical form. The observed pattern of the external world, as it is studied by the physical sciences, consists essentially therefore in three things: (1) qualitative reproducibility; (2) quantitative reproducibility; and (3) simple mathematical laws relating numerical observations which are derived from pointer readings.⁹

The next question of importance is the validity or adequacy of the conclusions of physical science as a description of the external world. What must be immediately apparent is that physical science has abstracted certain measurable quantities from an altogether richer reality, and has concerned itself with these, and these alone, to the exclusion of everything else which is of interest. The stones which were dropped into the water may have included a lump of granite from the roadside, the Venus de Milo, and a pearl of great price. So far as the experiment is concerned they are just stones, of varying size. As has been remarked somewhere, an examination candidate reads on his question paper, 'An elephant of mass four tons slides down a perfectly smooth slope inclined at thirty degrees to the horizontal. . . .' He notes down on his paper the bare facts: *four* tons, *zero* friction, and *thirty* degrees. The rest is irrelevant to his purpose in considering the mechanical problem. The elephant could just as well have been a load of cement. If attention is fixed on certain numbers, which are abstracted from a greater wealth of detail, either in the external world in general or in a drama of animal life, the resulting science can tell us only something about numbers. It is based on pointer readings, and it can predict the results of other pointer readings, provided that the laws are correctly formulated. Further than this it cannot go. Yet even this knowledge, fragmentary as it is, is of value. The laws of physical science do actually show a pattern or regularity of this kind in the external world, which underlies all other aspects of nature. But in seeking to understand the universe in physical terms we necessarily create for ourselves a kind of conceptual model of the real external world. Not only does an elephant become a

'mass of four tons', but the agency which causes bodies to fall becomes 'the force of gravity'; the reading of our clock tells us 'mathematical time'; a thermometer reads 'temperature'; and an electrical instrument reads 'electric current' or 'electric potential difference' and so on. Physical science is the study of the relationship between these concepts, and others of a like nature. The relations between such concepts are expressible mathematically, since the concepts themselves are derived from numerical observations. In other words, the physical sciences build up a hypothetical world, a world of mental concepts and mathematical formulae, which stands in a certain relationship to the actual external world; but which in no sense *is* the actual external world. This conceptual model may be referred to as the 'physical world'. Its relationship to the external world is that in so far as it correlates the observations of the physical sciences, and the results of physical experiments (often of great complexity), it enables us to correlate the measurable attributes of the external world and to make reasonably reliable predictions about the external world as regards its measurable aspect. But it would be entirely unjustifiable to assert that there exists a one-to-one correspondence between the physical and the external worlds; or that the mathematico-physical concepts are endowed with precisely the same degree of reality as the external world itself. In spite of all its power, its absorbing interest, and its complexity, physical science is a kind of parlour game, played with certain counters according to certain rules; and with the added difficulty that a new discovery sometimes calls for new counters and new rules.¹⁰ But that it gives an insight into one aspect of the external world which cannot be ignored by philosophers is not open to question.

The other sciences in their turn each abstract from the external world some one particular aspect for special study. Each discovers its own general laws, and makes its own contribution to the understanding of the pattern of the external world. In one sense it is true that each science is an autonomous subject with its own criteria and canons. Each science constructs its own conceptual model of the department with which it is concerned, but each

draws more or less on the conclusions of other sciences, and to this extent the conceptual models interpenetrate or overlap one another. Such borrowing is normally in one direction only. The sciences can therefore be arranged in order, in terms of this dependence one upon another. Thus chemistry draws on physics for its understanding of atomic theory, binding forces between the atoms of a molecule, etc. Biochemistry, the branch of chemistry concerned with the chemical processes which go on in living organisms, draws on chemistry. Botany and zoology, as soon as they seek to understand the phenomenon of life itself, draw on biochemistry. At no stage would it be true to say that one science is completely dependent upon another, in fact each began as a separate discipline and made considerable progress as a separate discipline. But beyond a certain stage of development each found that further progress was impossible without taking into its system the conclusions and the concepts of a science lower down in the series. Moreover, it would be a rash man who would maintain that the metabolism of the body is completely understood in terms of biochemistry, or that the phenomenon of life itself is completely contained within the conceptual model borrowed from sciences lower in the series. There are still many gaps to be filled in the regions between the recognized departments of science, and perhaps there always will be. But such progress as has been made towards ultimate scientific explanation of the facts of life has been made by borrowing in this way from other scientific disciplines. To take two obvious examples consider the following: (1) The metabolic rate of the human body is determined by excretions from certain glands and of particular chemical composition. Any study of metabolism involves also a knowledge of the oxygen intake of the body and the energy supplied in the form of food. Here then is a physiological problem which can be elucidated at the physiological level only in terms of concepts taken over from physics and chemistry. (2) The evolution of the different species from a single organic origin is a problem involving both botany and zoology. A large part of the evidence for the theory of evolution, though none of its explanation, is drawn from the geological study of the fossilized

remains of creatures now extinct. Here three subjects share an interest in a common problem. But how is evolution to be explained? It is explained in biological terms by the interaction of two factors: mutation, or the sudden appearance of organisms notably different in some way from their parents, which differences cannot be accounted for by any combination of heritable characteristics; and natural selection, or the competition either between different species or between the individual members of the same species for the means of livelihood. The latter is a purely biological factor; but the former cannot be understood purely in biological terms. Mutation can be traced on biological grounds to sudden changes in one or more of the genes in the chromosomes of the cell from which the organism develops. But it appears likely that each gene is an exceedingly complicated chemical molecule. It appears too that radiation from radioactive substances, and also certain chemical substances (known collectively as mutagens, because of this property which they have in common) are capable of modifying the structure of the chemical molecule which is the gene, and consequently of producing mutations. Thus, any complete understanding of the process of evolution involves the borrowing of both the general conclusions and also the concepts of sciences lower in the series than the biological sciences, namely physics and chemistry. If, therefore, it ever becomes possible to give a complete explanation of the process of evolution, it will be in terms which are at any rate partially chemical and physical. Clearly the sciences, though they began as separate and autonomous disciplines, are in process of drawing together; and in so far as they can ever give a unified picture of all aspects of the external world they will presumably do so in terms of concepts which are derived ultimately from the most abstract of them all, physics.

We must now ask what is meant by the word 'explanation' as it is used in scientific work. In physical science, to explain a phenomenon is to correlate it with other phenomena in terms of the abstract conceptual model to which we have previously referred. This will become clear if we consider an example. Why

does the osmotic pressure of an aqueous solution increase with increasing concentration of the dissolved substance? Because the frequency of impact of water molecules on any containing envelope is reduced by the presence of molecules of the dissolved substance. Here is a physical model which can readily be visualized by anyone with the necessary training; and a logical account of one complex numerical quantity (osmotic pressure) in terms of other complex numerical quantities (concentration, frequency of impact) and the physical concept denoted by the word 'molecule'. Why do some plants grow to a greater height than others? Because certain substances in the sap of the plant which are necessary in growth exist at greater concentrations in some plants than in others, and consequently the osmotic pressure of the sap is greater, so causing the sap to rise to greater heights. Explanations of this kind run through the whole range of the sciences. They depend for their validity on the recognition of a 'mechanism', which is sufficient to account for the observed facts in terms of other known phenomena, and ultimately in terms of the abstract numerical concepts of physical science. Such explanation is fundamentally descriptive, and is 'from below'. It accounts for the more complex in terms of the less complex. This is the only kind of 'explanation' which science recognizes in its own field. In philosophical language the sciences are concerned only with 'efficient causality'. The consideration of 'final causes' lies outside their province. In non-philosophical language, the sciences are concerned with the question 'How do things happen?' not with the question, 'Why do things happen?' Moreover, the efficient causes recognized by the sciences are discerned in terms of a conceptual model, which as we have remarked, does not stand in a one-to-one relationship with the external world. Or to put the matter another way, the efficient causes recognized by the sciences belong to the realm of the physical world, which is not the same thing as the external world itself, but a theory about the external world.

It is not inappropriate at this stage to ask why the sciences restrict themselves to consideration of efficient causality. To pass over into the realm of final causes would be to think teleologically,

to discern purpose behind process. And purpose is essentially something which is not observable. It may be discerned only intuitively. It is possible to hold more than one opinion about the purpose which lies behind any event, or even to hold the view that there is no purpose. Teleology is a subject about which general agreement appears to be impossible among scientists. In his private capacity as a person, a scientist may be firmly convinced that there is a purpose behind the facts and laws of nature, and that nature is responsive to the purpose of God. But in his capacity as a scientist he cannot assert this to be so.¹¹ The words 'purpose' and 'God' do not represent scientific categories of thought.¹² In his Gifford lectures Raven¹³ argues for the inclusion of the idea of teleology within the scientific framework; and indeed makes out a strong case for the view that the process of evolution can never be understood fully in terms of mechanism. This, I think, will be recognized in due time. But its recognition seems to require that the facts and theories of the sciences must be interpreted in terms of a wider view of reality, rather than that teleological ideas be adopted into the sciences themselves. Be that as it may, science as at present conceived concerns itself only with efficient causality and with explanations which are essentially mechanistic and descriptive. And it does this in terms of a conceptual model which differs in important respects from the actual concrete external world.

Nevertheless, the pattern of the external world, in so far as the sciences have been able to reveal it, is something essentially rational. Its rationality consists in its reproducibility and its obedience to law. In asserting that the external world is a rational system, on the basis of the scientific evidence, we are claiming that the human mind recognizes an order in nature, something akin to itself but existing independently of the human mind. Just as we can distinguish variety in causes, so we must distinguish different senses of the word 'rational'. The concept of causality is something empirical, something seen or discovered in nature, before it is exalted to the rank of a philosophical principle. So in the same way the external world is recognized to have an empirical rationality of its own, before we can go on

to claim that its rationality reflects the rationality of its Creator, and before we recognize that our own sense of rationality is derived from God Himself, in Whose image we are created. Any consideration of the rationality of the external world leads naturally to the question, How far can the rational scientific representation of the external world be pressed? To put the matter in another way: the study of the external world has led to the delineation of a conceptual model by means of which its observable numerical regularities can be accounted for in mechanistic terms, and by which predictions can be made of the future course of events in their quantitative aspect. The external world is treated as though it were a self-contained system, obedient to fixed laws expressible in mathematical terms. The question is therefore, Is the sum total of observable phenomena contained within certain mathematical equations, which can at least be written down if not actually solved? Is the future course of events in the external world completely determined by the operation of such laws? Is the future course of events completely contained in the present state of the external world, from which the future is derived by a continuous unfolding of a causal sequence? Or to use the technical terms appropriate to the question, Is the universe a closed determinist system? We must now examine this interesting and important question of the limits of the scientific view of reality; for an affirmative answer, if it could be sustained, would constitute an insurmountable barrier to any real understanding between the sciences and the Christian religion.

✓ From the time of Newton until the close of the nineteenth century the majority of scientists would probably have given an affirmative answer, with a degree of emphasis which most likely would have increased during that period. ✓ The inter-action of the Newtonian physics and eighteenth-century deism had left a legacy of scientific determinism which the discoveries of the nineteenth century tended to strengthen. As evidence that the universe is a closed determinist system, the late nineteenth-century man of science would have made the following points: (1) ✓ Both mass and energy are found to be exactly conserved. ✓

Within our experience it is not possible either to create or to destroy either matter or energy. (2) Consequently both matter and energy must be regarded as existing eternally; that is to say, existing in their own right from an infinite time in the past to an infinite time in the future. While scientists are prepared to assign an age to the earth, they are not prepared to assign an age to matter as such. (3) The principle of scientific causality appears to be of universal application. It is possible to give a physical account, or explanation, of a very wide variety of phenomena already; and we have no reason to suppose that further discovery and further elaboration of scientific theory will fail to bring all the facts of the natural world into one rational system. An event without a cause is meaningless. Scientists can be relied upon to discover the causes of all phenomena. (4) The determinist approach to physical reality has already shown itself completely satisfactory in handling all manner of problems, ranging from the prediction of eclipses to the building of the Forth Bridge.—Such was the faith, the optimism, and the self-assurance of the late nineteenth century in matters of science. We need dwell no further upon this attitude for it has been rudely shaken.

Karl Heim¹⁴ in his book 'The Transformation of the Scientific World-View' has shown how greatly the climate of opinion has changed in the past fifty years. The matters which he discusses are of course common knowledge to a physicist today, but without entering into undue detail it will be sufficient to make the following four points in reply to those listed above: (1) The principle of Relativity, which gives a new insight into the phenomena of motion, electrodynamics, and gravitation, and which is well supported by many newly-discovered facts, has completely outmoded the older Newtonian mechanics. The Newtonian mechanics is now to be regarded as an approximation only (though a remarkably good one) which is valid at relatively low velocities. According to the newer concepts of relativity introduced by Einstein, absolute knowledge of moving systems is unattainable in principle. (2) One consequence of the theory of relativity is that mass and energy are in some sense convertible

quantities. Thus not only does the mass of a moving body increase with increase of velocity up to a theoretically infinite limit as the velocity of light is approached, but a moving light photon must be regarded as possessing mass. The new view overthrows the rigid distinction previously made between matter and energy, and consequently overthrows any belief in the eternity of either. One possible theory of the origin of the universe is even prepared to postulate the continuous creation of matter throughout empty space. (3) In sub-atomic physics Heisenberg's principle of Indeterminacy asserts the impossibility of simultaneous knowledge of both the position and the momentum of a particle beyond a limiting degree of accuracy. Since all scientific concepts are now recognized to be dependent on pointer readings, either made in actual fact or conceivable in principle, the newer quantum physics no longer conceives of momentum and position as being capable of precise specification. Exact knowledge of the individual behaviour of the fundamental particles of physical science is therefore unattainable in principle. This view is universally accepted at the present time. (4) As a consequence of indeterminacy, it has been necessary to abandon altogether the concept of physical causality in the sub-atomic world. Where there is no possibility of exact knowledge in principle, there is obviously no possibility of exact prediction either. The regularity of events on the relatively large scale is now recognized to be a statistical regularity, analogous to the regularity of the death-rate. It is a regularity which depends on the law of large numbers.—Now it is fantastically easy to draw erroneous conclusions from such a pronounced change in physical modes of thinking as these four points represent. The attempts of some preachers to 'cash in' on the supposed 'free-will of the electron' have been both ludicrous and pathetic. All that we dare say with any assurance is that today no scientist of any competence would any longer regard the universe as a closed determinist system; and to this extent rapprochement between the sciences and the Christian view of the world is a great deal easier than it used to be. Having registered this fact with gratitude, we must be careful to remember that in any event the truth of the Christian religion

does not and cannot rest on the current state of scientific speculation, either now or in the future.

THE PATTERN OF REVELATION

The study of theology and indeed the practice of religion rest on a belief in the existence of an eternal world of spiritual reality independent of the world of space and time. The man of faith all down the ages has been conscious of this other world, and has sought to live in this life present as one whose true citizenship belongs to the eternal world-order. This conviction, at once unproved and unshakable, has been the source of all that is most valuable in human experience and highest in human endeavour. It is the ground of all search for the true and the beautiful, as it is also the inspiration of all striving for moral perfection in this life. The apprehension of the eternal world rests upon the conscious recognition of values as opposed to 'plain facts'. And since values are essentially personal, it therefore amounts to the claim that the Ultimate Reality is both spiritual and personal—more accurately, supra-personal. Religion at its highest has consequently been the quest for personal communion with the Eternal God. The basic question of theology as of religion itself is, How can man *know* the Eternal God?—not only in the sense of possessing true knowledge about Him, but in the deeper sense of personal communion with Him. The classical tradition of Christian theology, in full accord with the teaching of the first chapter of the Epistle to the Romans, has always held that man is capable of a real, though limited, knowledge of the Divine through the exercise of the natural reason. Natural theology, if it has not indeed succeeded in actually demonstrating the existence of God has at least marshalled the strongest reasons for theism on the basis of the natural order as interpreted by the natural human reason. It has shown cause moreover for holding that those values most highly esteemed by mankind, truth, beauty, and moral goodness, exist of necessity in the One Supreme Infinite and Eternal Creator Spirit. 'To know God and to enjoy Him for ever' is the final goal of human life at its highest and

best. Yet while the Catholic tradition of Christian theology has generously admitted the possibility of a true, though incomplete, knowledge of God through the exercise of the natural reason, it has also taught that God has freely revealed Himself to man far more fully through certain historic events, and through the interpretation put upon those events by the grace of inspiration. The knowledge of God is therefore mediated through those to whom He has made Himself known personally, and presupposes a channel of communication between the eternal and the temporal realms.

How is the Christian to conceive the relationship between the temporal and eternal world-orders, and the possibility of communication between them? Following William Temple¹⁵ we may begin by recognizing that within our own experience of reality there are different 'levels of existence', different 'levels of being'. Very roughly these form the subject-matter of different human activities or studies. Matter forms the subject-matter of the physical sciences; life, that of the biological sciences; mind, that of the main stream of pure philosophy; and spirit, that of religion. It may be that these four levels of being are not entirely distinct, without overlapping of any kind. It may be that they are in no sense independent of one another. What is important is that, as Temple says, 'each has sufficient identity in itself and sufficient distinctness from the others' for this series to form the basis of our thinking about reality. Matter, life, mind, and spirit recognizably exhibit an ascending scale of being. Within our human experience each level is actualized by being embodied in that immediately below it; life by being embodied in matter, mind in life; and spirit in mind. That is to say, our acquaintance with life is with matter in a particular state of organization; our acquaintance with mind is with the higher forms of animal life (including our own) which exhibit varying degrees of mental capacity; and our acquaintance with spirit in the first instance is with the highest of all living species, the human race. Moreover, each level of being reaches its highest point when it is indwelt by that which is above it. Thus we recognize a certain interpenetration of the various levels as we pass upwards through the

series to the less and less tangible but undoubtedly higher orders of being. The fundamental hypothesis of theology, the real existence of God, is the assertion that the highest order of being which we have recognized, so far from being limited to its embodiment in the human race, reaches its supreme level in the Eternal Creator Spirit, the One Self-existent Reality. Now it is a view widely though not universally held among philosophers that the lower can be understood only in terms of the higher. Thinking teleologically, therefore, each level in the scale of being is to be interpreted in terms of that which is immediately above it; matter in terms of life; life in terms of mind; and mind in terms of spirit. And the totality of existence is to be fully understood only in terms of the Supreme Spirit, which is God. Here then is the clue to the relationship between the temporal and the eternal world orders; for in man they meet. Through his material organism man shares in the temporal world of matter, life, and mind. Through his spirit he belongs to the eternal order, and reaches out to the Supreme Spirit. More important still, we discern the possibility of communication between the eternal and the temporal, the channel through which God makes Himself known to man, the channel of God's self-revelation in history.

Having asserted that the knowledge of God which is by the unaided human reason is supplemented through revelation, we must go on to set down the essential theological truths which bear upon the study of natural philosophy; but we need not attempt to define the point at which the one mode of knowledge passes almost imperceptibly into the other. Christian theology must insist on four main claims: (1) God is the Creator of all that is. (2) God is the Sustainer of all that is. (3) God is the Sovereign Ruler of the created order. (4) The natural order stands under divine judgement and is in need of redemption. Failure to accept any or all of these basic theological truths must lead inevitably to a view of the natural order, and of our own position within it, which is not only erroneous but in the last analysis blasphemous. For man is psychologically incapable of withholding his reverence and worship from some object; and

if not directed to the One Eternal Godhead that worship must find its object within the created order itself.

(1) The belief in God as Creator is integral to the biblical revelation, and we must not allow the frequent anthropomorphisms of the Old Testament to blind us to the essential contribution to revealed truth which has come to us through the Jewish race. The plain meaning of such passages as the first chapter of Genesis, the latter part of the fortieth chapter of Isaiah, and several of the Psalms is that the whole natural order, including man himself, exists solely through the creative act of God. As Creator God is the Author of all truth and all beauty and all goodness in the created order; for in Himself He is the perfection of all these things. Every level of being is derived from Him, and without His creative act could never exist. The Jew was led apparently to the knowledge of the universal Creatorship of God relatively late in Old Testament times. What he had already learned from the events of his own national history taught him that God's 'word' is powerful to effect His will, and therefore that all that is owes its existence to His 'command'. Accordingly the account of God's creative act is placed at the very beginning of the Scriptures. 'In the beginning God created the heaven and the earth.' But not content with this bald statement, the priestly author, making use of the simple 'scientific' ideas of his own time goes on to paint a superb word-picture of the creative act effected by the all-powerful 'word' of God. 'God said, Let there be light: and there was light. And God saw the light that it was good,' etc. It would be easy to fall into the error of supposing that the primary idea behind the word 'creation' is that of *coming* into existence *in time*. It is natural enough to think somewhat loosely of the world as having been created at a particular instant of time (or with time itself). Indeed the etymology of the word would appear to suggest this meaning. It is important, however, to recognize that acceptance of the biblical doctrine of creation in no way commits us to any view about the origin of the world in time (or with time). The essential point is rather the *dependence* of the created order for its existence upon the act and will of God. The vital distinction is between self-existence

and contingency. God is the one self-existent Reality, whose being is in no way dependent upon any other. The created world exists solely to fulfil His purpose. It is dependent for its existence upon Him. In *this* sense it is 'created'. To put the same point in another way, the exegesis of the first verse of Genesis must not be made to revolve round the phrase 'In the beginning'—for the same phrase is used by the fourth gospel to introduce the doctrine of the *eternal* existence of the Divine Logos. The contrast between Genesis and St John is in the phrases, 'God created', and, 'the Word was': the contrast is between contingent and necessary being. It is this biblical doctrine of creation, implying dependence rather than temporal origin, that guides the thought of St Paul in the first chapter of the Epistle to the Colossians, where the Son is contrasted with the whole created order on the ground that 'in him all things cohere'.¹⁶ The first essential theological truth which the Bible sets forth is that whereas the Godhead exists eternally, the existence of the created order is completely dependent upon the will of God. In discussing the relationship between the natural sciences and Christian theology it is both a serious misunderstanding and a considerable handicap to be committed in advance to the preconceived idea that the universe had an origin in time, or at the beginning of time.

(2) Having cleared away one misunderstanding, we are now in a position to grasp the importance of the doctrine of God as Sustainer. The created order of reality is in no sense self-existent. If the created order exists solely by the will of God, then quite clearly the condition of its continuance in existence also lies in the divine will. Being which is derived in the first instance from God is dependent throughout the whole of its existence upon a *continuing* act of creation. Thus God is the Sustainer of the whole created order at all its levels. The universe exists in the first place, and continues to exist in time, only because He wills it. The doctrine that God is the Sustainer of the whole created order is the necessary corollary in the Catholic scheme of theology to the doctrine that He is the Creator. In this way the traditional theology safeguards something of great importance

which found no place in the Deism of the eighteenth century at the very time that modern science was taking shape. The deists, by misunderstanding the doctrine of creation, were led to a view of God which recognized that His fiat was necessary to the *coming* into existence of the world; but thereafter dispensed with Him altogether except on the occasion of some miraculous intervention in the order of nature.¹⁷ God was thereby reduced to the role of a watchmaker, who having made his watch has no further concern with it. The tension between the immanence and the transcendence of God was 'solved' by ignoring the immanence entirely. The result was a God Who is inactive, remote, and detached. The whole conception of religion was impoverished by this single error. On the other hand the traditional doctrine that God is not only Creator but also Sustainer of the universe retains its hold on the truth that God is continuously active within the creative order. He does not 'let go' for a moment, so to speak. If he did, all would come to an end: the universe would instantly cease to exist. And because God is continuously active, sustaining the universe in existence, it follows that He is near and not remote, involved and not detached. In fact, the doctrine that God is the Sustainer of the entire created order is the only logical link between the first and the third of the four claims that theology must always make, if it is to safeguard the whole revealed truth. Once again traditional theology has a vital contribution to make to the integration of the scientific view of nature into a larger whole.

(3) Historically the claim that God is the Sovereign Ruler of the created order developed directly from the recognition of the guiding hand of God in the national life of the Hebrews. Beginning with the call and deliverance of Israel out of Egypt, passing on to the preservation of the early monarchy against Canaanitish enemies and of Jerusalem against Assyrian conquerors, the belief in the Sovereignty of God developed to the point at which even the heathen rulers of Babylon and Persia could be thought of as the agents of His purpose in history. We are not concerned here, however, with the historical process, beyond recognizing the occasion of this particular element of

revelation. Indeed, we shall do better to see the doctrine of the Sovereignty of God as the logical consequence of the doctrine that He is both Creator and Sustainer, though in fact the mind of man was led to these doctrines in the reverse order. Nevertheless, in thinking of God as Ruler, or in biblical language as King, we must be careful to remember the character of the Divine, and the 'limitations' which that character consequently imposes upon His actions. The God of the Christian revelation is the God of truth and goodness. As the Sovereign Creator, therefore, His rule respects the personal character with which He has endowed the highest of His creatures. The rule of God is a loving Fatherhood, not a compelling despotism. The highest of His creatures are endowed with personality and a real though limited freedom of will. God respects that personality and that freedom. He does not domineer over His creation, reducing all His creatures to the level of automata; but over-rules their free acts of choice, whether good or bad, by the power of love. God has revealed the power of His love, and the length to which it is prepared to go and to suffer in order to win the free allegiance of His subjects, in the Incarnation of His Son. The sovereignty of God is exercised from the Cross of Calvary no less than from the Throne of Heaven. But when the consummation of all things shall come and the Son 'shall have delivered up the Kingdom to the Father' having reigned until He has 'put all enemies under his feet', even the Son Himself shall be subject, 'that God may be all in all'¹⁸. In this present world-order a tension remains between God's rule and the disobedience of His creation, which will disappear only in the consummation of all things when God's purpose in creation is complete and His sovereignty unchallenged. In fact, the working out of God's purpose in the created order has been compared with the progress of a great drama, over which God presides as Dramatist, over-ruling for ultimate good all the actions of the characters which He has created. The doctrine of the Sovereignty of God implies therefore the recognition of the character of God Himself, and the recognition of the Divine purpose, shaping and guiding the order of events both directly and indirectly; permitting evil but bringing good

out of it, until that purpose be fulfilled. We must therefore think of the created order not as mechanically subservient to unchanging laws but as the arena of God's ceaseless activity. For 'the Lord is King, be the people never so impatient: he sitteth between the cherubims, be the earth never so unquiet'.¹⁹

(4) But just because the element of rebellion runs through it the created order stands under God's judgement. At exactly what level rebellion may be said to enter is difficult to determine: revelation is by no means clear on the question. Nor indeed could it be. Undoubtedly the hymn of creation which forms the first chapter of Genesis describes all God's works as seen by Him to be good. The first mention of evil is in the myth of the Fall. Even here there is no suggestion that the lower orders of creation are in any way involved in rebellion, which is man's alone. However, in the writings of St Paul²⁰ the entire natural order is said to be 'subject to vanity' and under the 'bondage of corruption'. In fact, 'the whole creation groaneth and travaileth in pain'. There is even perhaps the suggestion that the reign of death, which is thought of as the just punishment of sin 'even over them that had not sinned after the similitude of Adam's transgression,' may in some way have passed over to the lower orders of creation; and that the whole created world may be involved in the consequences of human rebellion. St Paul tells us nothing about the 'mechanism' which involves the lower orders; but he does seem to assert that in some sense the whole of creation lies in the grip of evil. Our Lord's attitude to disease might well lead us to the same conclusion. Maybe this is a subject where revelation readily passes into theological speculation; and in view of the very incomplete understanding of death and disease in biblical times an open mind is not unreasonable. However, we should be in line with biblical thought if we were to regard mankind, which is the peak of the animal creation, as dragging down the rest of creation in the sin of rebellion; so that life at all its levels is in some sense under judgement. Alternatively, if we find it most satisfactory to think of man's rebellion as a manifestation of his own finite self-centredness, then we may equally be prepared to see the beginnings of self-centredness

at lower levels of creation than the human race. Whichever way the matter is regarded we must conclude that the organic world as a whole is potentially good, because created by God; but in fact is in bondage, being 'red in tooth and claw' and showing manifest signs of the power of evil. In this sense the whole order of animate nature may be said to stand under judgement. The natural order as a whole is consequently in need of redemption if God's good purpose is to be fulfilled. The Gospel is concerned primarily of course with God's redemptive act towards man. In Christ and through His self-offering on Calvary man is offered personal redemption from sin. If, however, we are to see the Incarnation as *par excellence* the mode of God's activity in His world, that activity is essentially redemptive in its total purpose and effect towards the whole created order. Even though the logic may be at some points obscure, we can glimpse the profound truth which St Paul is seeking to express in the eighth chapter of the Epistle to the Romans when he accords a share in the benefits of redemption to the lower orders of creation. Though much can still be only dimly understood, these Pauline ideas have an obvious value as we try to relate the findings of the biological sciences to our belief in the Sovereign purpose of God.

Finally, we should take note of an important consequence of the fact of human rebellion against God. Christian theology has always insisted that the natural human reason, though capable of knowing God through reflection upon His creation is nevertheless warped by the fact of sin. This twisting of the human reason may be related to the common human habit of reaching opinions intuitively and then seeking to justify them by logical argument. It is readily intelligible if sin itself is conceived to be a manifestation of finite self-centredness. It follows though that not only man as a moral subject, but man's knowledge also, is in need of redemption by being brought into relation with revealed theological truth. In particular, scientific knowledge stands under judgement; and must be brought under the Lordship of Christ if it is not to result in an ultimate distortion of the total picture of the natural order. If we are to avoid an ultimately anthropocentric view of the world it will be only by learning

to see the conclusions of the separate sciences *sub specie aeternitatis*.

WHAT HAS THEOLOGY
LEARNED FROM THE NATURAL SCIENCES?

It is well known that Christian theologians at one time were somewhat reluctant to accept even the most certain conclusions of natural science into their thinking. However, following on a period of acute controversy in which the two sides misunderstood both one another and the limitations inherent in their own subjects, a new generation of theologians has arisen which is prepared to think out afresh views which had been handed down by tradition and to make room for the new knowledge. Except for a relatively small group of obscurantists, modern theologians have now accepted certain of the more important discoveries of the scientists, and have indeed welcomed them as throwing valuable light on the workings of God. The contributions which theology has accepted from the sciences concern the details of the first two of the essential truths which were set forth in the previous section: viz., the doctrines of God as Creator and as Sustainer of the natural world.

The evidence from geology, supported by the study of embryology and comparative physiology, established the theory of organic evolution as the only tenable account of the origin of species. The claim that the early chapters of Genesis gave a literal account of creation was consequently called in question and has now been abandoned by all reputable theologians. By contrast with the six days of creation in Genesis at an epoch presumed to be about six thousand years ago, the theory of evolution requires a time of the order of a thousand million years, and represents an immensely slow process of change which still continues in the present. Each species is believed to be derived by the accumulation of small differences from more primitive species, and ultimately from the simplest primordial forms of life which are presumed to be unicellular. Instead of a doctrine of 'special creation' for each species we now hold therefore that the whole of organic creation, including the human race, is one enormous

related family. For the Christian theologian who holds that the external world is the creation of God and the arena of His constant activity, this new view is intrinsically no more difficult to comprehend than the previous doctrine of special creation which was based on a too literal understanding of Holy Scripture. This is not to say, however, that the newer view does not raise its own peculiar theological problems. As long as man was regarded as entirely distinct from the rest of the animal world, having been created in the image of God on the last day of creation, the special status of the human race appeared to be adequately safeguarded. Once his kinship with the rest of the organic world has been accepted it becomes necessary to regard his uniqueness somewhat differently. Moreover, the part apparently played by chance, and by competition both between species and individuals, seems at first sight to suggest that processes which are essentially amoral have been decisive factors in human evolution. Is it possible to accept the view that the high end of producing the human race in the image of God can have been achieved by means which are at once so fortuitous and morally neutral? These difficulties will be seen to lose much of their force once we realize that for the real understanding of the process of evolution the mechanistic account given by the sciences needs to be supplemented and interpreted by teleological considerations. We must realize that the scientific description of a process occurring on the large scale in terms of the conception of chance is invariably an admission that the sequence of cause and effect cannot be traced in detail. Obvious instances of this inability are met with in ordinary life; such, for example, as the tossing of a coin, the shuffling of a pack of cards, and the operation of medical causes in the statistical determination of the death rate of a large community.²¹ The employment of the laws of chance is always an admission of ignorance, rather than an indication that the facts under consideration are intrinsically irrational. It is therefore entirely open for us to regard the chance mutations of the theory of evolution as events which are the result of physical causation, and which are ultimately guided in some sense by God.

Again the amorality of natural selection very largely ceases to be a difficulty once we realize that at levels below the human, physical pain is a relatively insignificant part of animal experience. The experience of physical pain implies a high degree of sensitivity in the organism concerned, and this in its turn implies a highly developed central nervous system, which is absent in the lower forms of life. We have to remember, moreover, that in man the experience of physical pain is accentuated by his own anticipation of it, and this too depends upon the possession of highly developed mental powers. Animal suffering is usually grossly exaggerated by our habit of seeing ourselves in the position of the animal. In fact, there is probably remarkably little real pain in the animal world below the human level; and such physical suffering as was experienced by our immediate sub-human ancestors is the only part of the apparent total which has real significance. When we also remember that through the Incarnation God Himself has shared to the full the human lot, the objection seems to fall to the ground; for we cannot doubt that our Lord's sensitivity even to physical suffering was greater than our own. Provided then that we are prepared to see the processes of mutation and natural selection as in some sense guided and over-ruled by the purpose of God, there is no reason why theology should not accept *in toto* the broad outline of the theory of evolution: as in fact it has done.

The problem of the status of man in relation to the animal world is somewhat more difficult. Remembering our previous classification of the four different levels of being we shall agree that man differs from the animals in the possession of spirit. Quite obviously mind, or mental capacity for recognizing, knowing, and learning, already exists at the highest animal levels below the human. Spirit presumably does not. Here we discern a valid distinction between the human species and all others, as the animal kingdom is at present constituted. But if we are considering the evolution of mankind from an animal ancestry, we may be inclined to ask, When did spirit first make its appearance? Before a certain epoch there was a fully developed animal life, and some of the higher animals presumably had a

not inconsiderable mental capacity. At a rather later epoch man has appeared as well. He is descended physically from what already existed, but differs from the rest of the animal kingdom in his possession of spiritual faculties; which is what is meant by saying that he is created in the image of God. What happened between these two epochs? Was an individual born at some time in this interval who differed from his immediate parents so enormously in the possession of this new gift, that it can be said that he was the first man, whereas they were only highly developed apes? And if so, was a female with the same spiritual difference from her immediate parents born at about the same time, and in the same part of the world, so that the new human race could reproduce itself? The question is, Are we to suppose a sudden jump forward under special divine guidance, in order to account for the difference between man and the higher ape-like stock from which he is supposed to have been descended? If we do so, are we not re-introducing the doctrine of a special creation in a new disguise? We are at liberty presumably in the present state of knowledge to suppose, if we wish to do so, that man is descended from the animal world as far as his physical and mental characteristics are concerned, but is a new creation as far as his spiritual faculties are concerned. To some of us this may seem to be the right view to adopt, but it raises a very curious situation in the 'family' in which the sudden jump forward takes place. A somewhat similar problem arises when we think of the origin of life itself. In our present world there are known to be enormously complicated organic molecules, and extremely minute viruses, which in a sense can be thought to bridge the gap between the inanimate and animate orders. But if we are to draw a hard and fast line between what is living and what is not, we again have to postulate a sudden jump forward, which again is a special act of creation in disguise. Once more this may be the truth; though at present there is no way of knowing for certain that it is. There is, however, a better way of looking at problems of this kind: and they are quite numerous if we take the whole sweep of the evolutionary process and think of the origin of various bodily organs in turn. We

must remember one of the most striking facts of the whole process: namely, that the individual from conception to birth recapitulates some of the main stages in the evolution of the species. Beginning with the fusion of two cells, and ending with the birth of a child, we have a continuous process of growth and development. There are no sudden jumps forward. At one stage a particular organ is absent; at a later stage it is there; but we cannot state the precise instant at which it appeared. Or again in the growth of the child to maturity we have a continuous process of change. At one stage the individual is a boy; and at a later stage he is a man; but we cannot state the precise instant at which the boy became a man—the age twenty-one is no more than a convenient legal fiction. Considerations of this kind lead us to the view that the questions we have been asking, for example about the first appearance of man, are in fact meaningless questions. All that we can say with any certainty is that a continuous slow process of change, or evolution, has taken place in the stock from which mankind has descended. We have no right to look for, or to expect, any sudden jumps. We have no need to demand any special acts of creation in whatever disguise, for the whole process is the process of creation. God is active throughout the entire evolutionary change, and all of it is His work. The corollary of this view is that we must not draw too hard and fast a line between mind and spirit. We must be ready to accord value even to the lower species of creation. We must retain our proper hold on the spiritual status of man, not so much by contrasting him with the rest of the animal world, as by stressing his kinship with the God in whose image he is made. And surely this is sound theologically.

When these new insights have been properly grasped, we find the main lines of the evolutionary view of creation entirely compatible with what we already know of the activity of God in history and in the working of grace. God never forces the pace; and He always builds on what has gone before. The process which He had watched over lovingly for a thousand million years reached its culmination when God the Son took human flesh of the Blessed Virgin Mary. The human nature, and not the human

body only, which God had guided into existence was a fitting medium for His own Incarnation. By this act God set the seal on His own patient handiwork, 'not by conversion of the God-head into flesh: but by taking of the Manhood into God'. We may, indeed we must, see the Incarnation as the direct personal act of God, by which He initiated what has been called the new Creation. For no view of Christ which regards Him as solely the product of the evolutionary process, however guided, can possibly do justice to His Divinity; and the Virgin Birth took place to safeguard just this, both as fact and for faith. The fact that God the Son was Incarnate in human nature both sanctifies the whole process of evolution and gives it its teleological significance. In Christ is summed up not only the suffering of the human race, past, present, and future, but also the growing pains, at their own lower level, of the whole organic world. No wonder then that St Paul can write: 'The whole creation groaneth and travaileth in pain together until *now*. And not only they, but ourselves also, which have the firstfruits of the Spirit, even we ourselves groan within ourselves, waiting for the adoption, to wit, the redemption of our body.'²² Christian theology today gladly accepts the new insights; recognizing with thankfulness the value of the slow creative process; and looking forward to the final consummation of the divine purpose in the fulfilment of the new creation in Christ.

We must consider now the consequences for Christian theology of accepting into its thinking the scientific insistence on the operation of the laws of nature. Of course, serious theology has constantly recognized that an *order* of nature exists, and that this orderliness reflects both the steadfastness and the control of God. To do otherwise would be to compromise the omnipotence of God; and either to hand over the control of nature to some demiurge, or else to make it a self-existent and self-explanatory system. Though in principle, however, the orderliness of nature is implicit in the Christian position, for many centuries mankind remained credulous to a degree; and it is only with the development of the natural sciences that there has been any real recognition of the true uniformity of natural processes. If there is

any one conclusion to be drawn from the scientific investigation of the external world which is incontrovertible and not open to revision, it is that within the range open to investigation events on the large scale are rigorously obedient to the laws of nature. While we readily recognize that the uniformity of nature is a necessary condition of a rational life and of the exercise of moral responsibility, nevertheless a serious theological issue arises if the current scientific view of uniformity is accepted at its face value. We have seen already that a strictly determinist natural philosophy is no longer tenable, and that events on the microscopic or atomic scale are not predictable except in terms of probability. The laws of the large-scale world are therefore statistical in character, and strictly speaking they state overwhelming probabilities rather than absolute certainties. Yet on account of the vast difference in scale between events within the atom and events which directly concern the life of man, the normal laws of nature must be treated as being absolutely rigid for all practical purposes. The issue then is this: Can we believe that the course of nature is in any sense responsive to spiritual issues? Is it in any way influenced by the spiritual needs, and moral purposes of human life? Can prayer for instance have any effect whatever on the course of nature: on the weather, on disease, on the issues of life and death? Or must we say that the laws of nature and physical causality do in fact operate quite irrevocably? Is it possible to accept the practical uniformity of nature as regards events on the large scale without thereby converting the world, which we have already called the 'arena of God's activity,' into a soulless prison of the human spirit? It is not a solution simply to claim the possibility of a very occasional departure from uniformity as a kind of loophole for the religious attitude to life. Religion does not want a loophole, and a loophole remains intellectually unsatisfactory. We must return to this point later, and we must be content at this stage to make a few general observations only.

The difference between the scientific and the theological accounts of nature is not a difference in the range of facts which are recognized as true, but a difference in the point of view which

is adopted towards the same range of facts. In other words, both the scientific and the theological views of nature, must recognize the practical uniformity of large-scale events as truly representing the given facts of the situation. But whereas the scientist, speaking as a scientist regards this uniformity as the rule of law; the Christian theologian regards it as the activity of God. The faith of the Christian in God is a faith which is still held in the face of the facts. The Christian does not believe any the less in the omnipotence of God, when God does not alter the facts of the external world either in response to prayer or on account of man's spiritual need as he himself conceives it. The Christian belief both in the power and in the wisdom of God is absolute and unchangeable. This is not to say that the personal faith of the individual is not sometimes shaken by the apparent contradiction between the love of God and the unyielding uniformity of nature. It is claimed on behalf of Christian *theology*, which is the rationalization of the *consensus fidelium*, that faith in both the power and in the wisdom of God is absolute. This being so, having accepted the fact of the practical uniformity of nature into its system, Christian theology must maintain that this unresponsiveness of nature to human needs as humanly conceived does indeed represent God's will. We may go further in view of the Incarnation; for God the Son has accepted the conditions of human life for Himself exactly as we know them. Though our Lord's miracles undoubtedly indicate a unique control over nature such as is not within our own power, yet the most remarkable thing about the miracles of the New Testament taken as a whole is that they were performed entirely for the benefit of others. In fact throughout His whole ministry, from the time when He was tempted in the wilderness to turn stones into bread until the time when He was tempted on the Cross to save Himself, our Lord consistently and purposefully refused to employ His unique power on His own behalf. However much He was willing to use His miraculous gifts to relieve the sufferings of others, He resolutely insisted that He Himself should share the normal human lot. Yet His own sufferings were incomparably greater, as His power to relieve Himself of the

necessity for enduring them was greater, than our own. Here then, in the willingness of Christ to share the facts of the world of nature as it is in our experience, we have the strongest possible ground for asserting that this practical uniformity is indeed the will of God for man; and that this uniformity is entirely consistent both with the power and with the love of God. In spite of the apparent unresponsiveness of nature to spiritual needs as we conceive them, we must still maintain therefore that the world of nature is the arena of God's activity. In this faith man must accept for himself the discipline of being 'incarnate' in this particular world as it is actually constituted. It is God's world; and God has put man into it.

But God has not left mankind without positive evidence, though evidence which speaks in the language of faith, that nature is ultimately responsive to spiritual issues. Christ indeed never used His power over nature for His own purposes. The fact that He worked miracles of compassion, however, is evidence to the faithful that the power existed, and that nature responded to His word. And having accepted death on the Cross in order to win man's redemption, Christ was raised from the dead by the power of God. The Resurrection of our Lord Jesus Christ necessarily implies His Lordship over the forces of nature. The Resurrection indeed is the response of the world of nature to the supreme spiritual issue of all time.

WHAT MUST NATURAL PHILOSOPHY LEARN FROM THEOLOGY?

The contrast between the titles of this section and the one previous is striking, and is intended to be so. The two sections are somewhat parallel to one another, in that each deals with the way in which two mental disciplines are able to supplement one another. But whereas we can justly claim that theologians have already been at pains to learn a great deal from the natural sciences, it is unfortunately not yet true that scientists as a body have similarly profited from the study of theology. Practically all the attempts that have been made to bridge the gap between theology and the

sciences have come from the theological side. This fact is probably not unconnected with the circumstance that while the scientist is most concerned to extend the boundaries of his subject, the theologian is committed by his own studies to the attempt to see the world as a whole. Nevertheless, this difference of outlook alone would not be sufficient to account for the one-sidedness of the efforts at bridge-building. In spite of the obvious fact that there are very many scientists who are also practising Christians, scientists as a body are not notably inclined to metaphysical modes of thought, and are indeed somewhat prone to regard general philosophy as too much concerned with mere words and not sufficiently with hard facts. In its turn, this unfortunate state of affairs is a result of the almost complete separation of natural philosophy from the broader philosophical tradition, which has been so marked a feature of academic life for the past couple of hundred years or so: a separation which, we must record, has been disastrous also for pure philosophy. In the very nature of things, philosophy in the widest sense should have remained the link between theology and the natural sciences, and should have formed an essential part of the academic training normally given to science students in the universities. As a first step towards a general reconciliation between the sciences and theology, there needs to be a new attempt to recover a sense of the wholeness of the philosophical tradition, so that observation, conceptual thinking about the external world, and metaphysical understanding may be seen to supplement one another. When this is achieved, or even while it is in process of achievement, the kind of question with which theology is concerned will cease to appear utterly irrelevant to the vast majority of practising scientists. Or to put the point in another way, the bridging of the wide gap which separates the sciences from theology cannot be effected without the construction of its central philosophical span.

It is desirable that scientists as a body should come to recognize the limitations of their own particular approach to the external world. The various sciences in their attempt to understand a particular aspect of the natural order seek to answer the

question, Why does this or that happen? The scientist devises suitable experiments, makes observations, and succeeds in throwing considerable light on the process under investigation. He recognizes and isolates certain immediate causes, and constructs a conceptual picture of this or that corner of the external world. But by his own chosen and necessary technique of experiment and observation he is prohibited from pursuing the question to its philosophical conclusion. The ultimate answer to his question would necessarily lead him into the realm of metaphysics; and metaphysics is not his business. It is often remarked that the question which has been answered by the method of the sciences is the question 'How?' and not the question 'Why?' and this is but an alternative way of stating that the sciences deal with secondary causes and not at all with primary causes. We are not suggesting that scientific treatises should concern themselves with metaphysics; but that scientists would do well to recognize that beyond and behind the questions which they themselves answer lie the profound metaphysical questions of ultimate reality. The question of the origin of the external world, by which we mean the question, 'Why does the external world exist at all?' falls outside the scope of the sciences. It is not to be confused with the question of the evolution or development of the world from primitive beginnings in the course of the time process. This latter is a question which the sciences can answer, at any rate in part, granted the prior existence of the constituents of the external world, matter and energy, or more accurately matter-energy. But why does matter-energy exist at all? Is its existence necessary, or contingent? And if contingent, on what necessary being does its existence depend? In other words, scientists or natural philosophers, as persons, should face the question, which lies outside their own specialist province. What is the ultimate reality on which all else depends? The first step is to recognize that this is a valid question which must be asked; that it is not irrelevant to the search for an understanding of the external world. And if it is a valid question, the second step is to seek to answer it by accepting the guidance of those disciplines of the mind whose prime concern it is. The natural sciences will

remain fragmentary and inconclusive; and natural philosophy will remain unintegrated; until it is recognized that the lower can be understood fully only in terms of the higher. Matter and life require mind and spirit for their interpretation; the ultimate reality is personal, or, more accurately, supra-personal. The world exists at all only because it is created and sustained in existence by the One Self-existent God. While the metaphysical and theological concepts and vocabulary in no sense belong to the language of science, yet they are necessary to interpret the conclusions of the sciences and to integrate them into a larger whole, which shall be satisfying to the whole man. The external world is created by God. God is the Creator of all that is. This is our first integrative principle.

√It follows that all pure research in natural science is an uncovering of the works of God. From the human side we speak of this as discovery. The world, which is God's creation, lies open before us. Some things about it we can learn directly for ourselves simply by looking. Others we cannot. We therefore make experiments under chosen conditions. This means that in effect, we ask specific questions of nature. The natural world yields up the answers, in a form which is logically determined by the manner of the question. By the use of our senses and our minds we say that we have discovered something about the external world. This is not the only way, however, nor necessarily the best way, of stating what has happened. Seen from the other end, the process of discovery is quite different. From God's side it is revelation; for He has been pleased to communicate to our minds some small part of the understanding of the external world which is already His through the fact that He is its Creator. Scientific research is therefore an activity which not only uncovers the works of God, but brings the research worker into intellectual contact with the Mind of God, Who already *knows* what the scientist regards himself as discovering. What we call the 'discoveries' of science are the rewards of patient and honest searching; in response to which God reveals to man, as his mind is able to comprehend it, something of the wonder and order of creation. The scientist by disposition is usually a

humble seeker for truth, with the humility of a child before the face of the facts. He would do well to recognize that his own research work is a close counterpart to the quiet, humble, patient, waiting upon God of the man of religion. In each case the essential attitude is the same. In each case contact is made with the same Creative Spirit, who chooses to reveal Himself to the mind and spirit of man. Let it be recognized then, by scientists themselves, that pure scientific research is a profoundly religious activity.²³ The greatest scientists, those who have made really significant 'discoveries' and have retained their humility and sense of wonder, have generally been prepared to admit that intuition plays a very large part in scientific research. It requires natural intuition of a high order to devise the experiments which are to be conducted; or in other words to ask the right questions of nature. A relatively mediocre mind can often be entrusted with the construction of the apparatus, and even with the making of the observations. But again it is only the man with great intuition and insight who discerns the pattern in the observations, formulates the new theory or new law, and thus makes the 'discovery'. Science is by no means the hum-drum business of logical deduction which it is sometimes made out to be. The really significant advances are the result of flashes of insight, which are subsequently tested by further experiment. And it is important to realize that intuition is the human aspect of a process which from the divine end is inspiration. Only let the scientist recognize the true character of his 'discoveries', and an important step has been taken towards bridging the gulf which has come to separate natural science from theology.

✓ Finally, what must we ask the scientist to discern in the pattern which he discovers, or rather which God reveals, in the external world? It is a coherent, rational, pattern. Though it is apprehended first of all in a flash of insight, somewhat as spiritual truth also is apprehended; it is tested exhaustively both in experiment and in theoretical development, somewhat as revealed spiritual truth has been tested exhaustively down the ages by the living Church. A pattern is the product of a mind. We are claiming that the pattern of the natural world is the product of the

Mind of its Creator. Its order reflects His purpose in creation. Science itself is not concerned with mind and purpose; they are concepts which lie outside its province. The sciences are concerned to represent the processes of nature as completely as possible in terms of concepts which correspond to observable or measurable qualities of the external world. Gradually a more and more complete conceptual picture or representation of the world of nature is built up as progress is made, though at no stage have we the right to assert that a one-to-one correspondence exists between the conceptual world and the actual. The function of the sciences is to explain the processes of nature from below by discerning causal sequences. As more and more of the observable facts are brought within the conceptual scheme, the large-scale picture of the universe becomes more and more deterministic. But just because there is not a one-to-one correspondence between the conceptual and the actual, we are never justified in claiming that events in the real world are strictly determined. The scientific account of the universe is therefore limited in its ability to present a true account of the whole of our experience of the external world. Nevertheless, the account which it gives is of the highest value, provided it is not pressed to unjustified limits in the face of other equally valid experience of reality which is not amenable to scientific codification. If the external world is to be *understood*, as well as to be explained in the current scientific sense of the words, the scientist as a person must be prepared to make use of the concepts and language of metaphysics and theology, although they lie outside the strictly scientific vocabulary. The pattern must be interpreted in terms of the Mind of the Creator. The *order* of nature must be understood as implanted in nature so that the external world is capable of fulfilling the function for which it is intended in the purpose of God. Scientists, if they are to understand the world of nature, and not simply to be content to explain it in terms of secondary causality, should recognize that the ultimate structure and laws of the external world are what they are because God has imposed this structure and these laws upon it. The whole corpus of our knowledge of nature represents a partial discovery, or revelation, within a certain

intellectual framework, of God's ordering of nature in accordance with His purpose. Theology is not trying to dictate how far the sciences may go in exploring the mysteries of nature. Men can know nothing unless God reveals it. Theology is not trying to say what are the fundamental scientific laws which govern the external world. That is the business of the scientists. All that theology either asks, or has the right to ask, is that, whatever the fundamental scientific laws turn out to be, the scientist shall regard these laws as representing God's ordering of nature in accordance with His purpose.

In order to bridge the gap between the sciences and Christian theology, we are asking only that scientists shall accept three simple integrative principles: (1) The external world is not self-existent, but is created by God. (2) In studying the external world by the methods of the sciences, the human mind makes contact with the divine Mind: thus discovery and revelation are two aspects of the same encounter. (3) The fundamental laws of nature are what they are because God has so ordered the world which He has created.

In asking scientists to accept these three principles, are we asking too much? Surely, we are not. Acceptance of these metaphysical or theological principles does not in any way interfere with the scientist's freedom to pursue his own investigations wherever they may lead. It does not in any way limit or pre-judge the conclusions of any scientific investigation whatever. We are not attempting to foist on to the scientist what Coulson²⁴ has vividly called the 'God of the gaps', treating the concept of God as a kind of pseudo-scientific explain-all, which can be invoked to fill up any temporary ignorance of the operations of nature. We admit that the word 'God' has no place whatever in the terminology of science, and never can have a place. The word 'purpose' has no place in the language of science, and probably never can have a place. Scientists, by the very nature of the observational discipline which they adopt, are committed to the search for secondary causes: to the building up of as accurate a conceptual picture of the external world as possible; to expressing the fundamental laws of the external world, as they concern

observable quantities, in terms of this conceptual picture of external reality. These objects are not affected in the very slightest degree either by the formal acceptance or rejection of theism. But having accomplished this programme as fully as may be, scientists have still to interpret their findings within a wider metaphysical and theological framework. All that we ask is that as persons they should not shrink from doing so; and that in this further task they should be ready to accept the insights of a valuable and ancient tradition, Christian theology; which, in spite of much neglect and misunderstanding, can nevertheless, provide the essential clue to the interpretation of human experience as a whole.

TOWARDS A THEOLOGY OF NATURE

Any understanding of the world of nature, if it is to satisfy the whole man, must take account of the fact that man is both a questioning mind and a believing person. It must therefore be not only intellectually, but also theologically satisfying. The starting point is the fact that all events of the external world must be traced back to God as their ultimate cause. Clearly we cannot claim that all occurrences in nature are the direct result of God's act. To do so would be to turn a blind eye to all that is evil; and to reduce all living beings, including ourselves, to the level of robots. Consequently, any theology of nature, if it is to be true to the given facts of our experience, must also recognize the validity of secondary causes. The acceptance of the principle of secondary causality in the created world implies that God in His infinite wisdom has placed certain limitations on His own, otherwise absolute, control over events. God has voluntarily limited His own freedom of action in order to give a limited freedom of action to His creatures. Yet, as Christians, we are bound to assert that the external world, the order of nature, is the arena of God's activity. To attain to a satisfactory theology of nature is therefore to answer the question, What do we mean by saying that the external world is the arena of God's activity?

In order to answer this question we begin by drawing a

distinction in principle between fundamental laws which may be regarded as directly imposed by God on His creation, and other laws which are causally connected consequences of these fundamental laws. The distinction is valid in principle; and is necessary if we are to do justice to the knowledge of the external world which has been acquired by the various sciences. We have not yet stated what these fundamental laws are. Nor can we. The most we can do at any given time is to accept as a working hypothesis the conceptual picture of the world of inanimate nature, which is provided by the physical sciences. We recognize that this conceptual picture is the nearest the human mind can yet come to an apprehension of the fundamental facts of the external world. We must rest our discussion on the present state of scientific knowledge. To follow this course does not make the theology of nature ultimately dependent on what may turn out to be only a passing phase in scientific theory. It does mean, however, that we shall not be justified in claiming any finality for the conclusions to which we shall come. We shall not be entitled to announce our conclusions as 'the theology of nature'; though we can legitimately claim to be moving 'towards a theology of nature'. We will claim no more than this.

What then can we say, in the present state of knowledge, about the fundamental laws of nature? From the time of Newton until only two generations ago the laws of motion and the law of universal gravitation would have been included in any summary of fundamental laws. When Maxwell succeeded in comprehending the phenomena of electricity and magnetism, and light under a single set of equations, it would have been natural to include these laws also under the heading of fundamental. Such a list would have been regarded as satisfactory at the close of the nineteenth century, and on the basis of these 'fundamental' laws, the deterministic picture of the universe appeared to be securely based. However, the last two decades of the nineteenth century, which witnessed the apparently final formulation of the laws of the large-scale universe, saw also the discoveries which were to lead on in the present century to the understanding of the structure of the atom. In other words a

new small-scale world was being opened to our investigation just when apparent perfection was being reached in the understanding of the large-scale world. It is not in the least surprising therefore that the laws and equations which had proved so powerful in dealing with the large scale should be immediately applied to the atom itself. The brilliant researches of Rutherford in the first years of this century quickly led to a conceptual model of the atom which was remarkably similar to the solar system on a minute scale. The atom was conceived as a small but heavy positively charged nucleus surrounded by a compensating number of electrons, so that the whole is electrically neutral. Since positive and negative charges attract one another, such a system could not remain in existence unless the electrons were assumed to be revolving in closed orbits so that the central accelerations are related to the attractive forces; just as in the analogous problem of the solar system the central accelerations of the planets are related to the gravitational forces. All further attempts, however, to account for the behaviour of the atom by applying what came to be called the laws of classical physics to its structure proved abortive. In particular, the attempt to understand the emission of light from such a system necessitated the abandonment of classical ideas, and their replacement by the quantum rules first introduced by Planck. To the classical physicist the quantum theory, with its insistence that energy can be radiated or absorbed only in discrete amounts, or quanta, appeared entirely arbitrary; but the theory worked in an empirical sort of way, and consequently gained acceptance. It was not until the late 1920s that a new set of fundamental laws began to emerge, which could be applied consistently, in place of the classical laws, to the internal behaviour of the atom. During this period indeed three different but equivalent systems of fundamental laws were discovered, and it is perhaps simplest to view the new understanding of small-scale phenomena in the light of Heisenberg's statement of the principle of Indeterminacy (1927) to which we have already referred. What follows is, of course, the very briefest outline; but it will serve to indicate the importance of the new principles for any theological appraisal of nature.

It is an axiom of physical science, though it has not always been recognized as such, that it is impossible to have any physical knowledge of a material system other than that which is obtained by observation. This does not imply that every single quantity which is referred to must in actual fact be observed. It is sufficient for physical theory that we should be able to conceive of an experiment by which such observation could be carried out in principle, even though we do not carry it out in practice. That is to say, physical science is concerned only with observable quantities. Now according to Heisenberg's principle it is not possible to know both the position and the momentum of a moving particle simultaneously with perfect accuracy. Quite apart from any conceivable human errors of observation, there is a fundamental objection in principle to the ultimate accuracy of such observations, even if carried out by an ideal observer who is presumed to be incapable of ordinary human error. This result may be considered to arise from the fact that observation itself disturbs the thing which is observed by an unknowable amount. If an ideal experiment is devised to show the position of a particle to a high degree of accuracy, a considerable disturbance of its motion is unavoidable; while if the ideal experiment seeks to observe its motion to a high degree of accuracy, the position of the particle is correspondingly disturbed. For some time physicists were content to accept this fact, while still continuing in their hearts to believe that the concepts 'position of a particle' and 'momentum of a particle' could be given precise meanings, even though in principle the quantities themselves were ultimately indeterminable with complete accuracy. Gradually, the consequences of the axiom have come to be fully accepted, and it is now universally recognized that it is meaningless to attempt to specify the position and momentum of a particle to closer limits than the indeterminacy principle allows. The consequence is that in specifying an elementary particle, such as an electron, we can only state the probability that its position lies within a certain volume of space; and the probability that its momentum lies within a certain range of values. Probability has taken the place of certainty. The New-

tonian laws of motion and the Maxwellian laws of the electromagnetic field, therefore, which previously were regarded as fundamental, must now be recognized as true only for larger assemblages consisting of a vast number of elementary particles. They are in fact laws which state the average behaviour of aggregates of particles; rather in the way that the laws of life-expectation employed by insurance companies refer to averages for a large community of individuals. The same kind of position obtains also when we consider various other phenomena connected with atomic structure. The radioactive disintegration of an atomic nucleus can be represented only by statistical laws. We cannot say when a particular nucleus will disintegrate; but only what is the probability of its doing so within a particular time interval; and this is equivalent to knowing only what fraction of a very large number of such nuclei will disintegrate within the specified time interval. The present position in physical science is that the fundamental laws, or the laws which are now reckoned to be fundamental, are not precise statements of certainties, but only statements of probabilities. The apparent determinacy of events on the large scale is a regularity of the average behaviour of vast numbers of elementary entities, none of which can be known separately except in terms of probability.

How then are we to regard the ultimate control of God over the natural world as being exercised? Laws which are expressible in terms of probability, and in no other way, leave the determination of individual events remarkably open. The supersession of the Newtonian laws at the atomic level and their replacement by quantum theory, has shown that there is a limit beyond which it is futile to look for causal mechanical sequences of the kind normally met with in the sciences. Are we then to suppose that beyond this limit causality has in fact become meaningless? In the only sense in which the sciences conceive causality, yes. Physical science must be content to speak of many events at the atomic level as being uncaused, or spontaneous. An atom is raised to an excited state, from which it can return to the ground state with the emission of a quantum of light radiation. When will it do so? We cannot tell. On the average, it is likely to remain

in the excited state for, say, one hundred-millionth of a second. It may remain in the excited state for a longer or a shorter time; but we do not know which; and we cannot know which. Its return to the normal state is an uncaused event, physically speaking. A radium nucleus may emit an alpha-particle, becoming a nucleus of radon in the process. This may happen today, or in two thousand years' time. We do not know when it will happen; and we cannot know when it will happen. The disintegration is an uncaused event, physically speaking. We are claiming here, however, that if nature is to be interpreted theologically, and not only to be explained physically, we must be prepared to see the fundamental laws of nature as a control directly imposed by God on His creation. Where physical causality fails we are therefore entitled to see the operation of another kind of causality. Is it too fanciful to recognize the will of a personal God as the ultimate causality in events on the small scale? Can we conceive of a direct divine control exercised in such a way that the observed statistical laws hold good? Or does the very idea of a personal control preclude any regularity of a statistical kind? The kind of control which we are envisaging should more strictly be described as supra-personal; but we can only think of it in personal terms, on the analogy of our own experience. The essence of personal control is to be seen in the exercise of choice. Let us suppose that I am a member of a particular club whose other members are denoted by A, B, C, etc. When the club meets I engage in conversation with different members in turn; and I am free to choose with which members I engage in conversation. (Incidentally, their free choice enters into the matter also, but for our purpose this can be neglected.) I find the company of certain members more congenial than that of others. On the average I spend twice as much time in conversation with A than I spend with B, and three times as much as with C. Here is a simple statistical law which represents the result of my free choices on the average. But the choices themselves are free personal acts; and are determined not by the desire to maintain the statistical law inviolate, but by the fact that I have more that I want to say to some members than to others. I am com-

pletely free to spend a whole hour with C if I wish to do so; but over a long period I shall spend three times as long with A. Such an analogy as the foregoing appears to suggest that even in our own human experience, the exercise of free choices at a personal level is entirely compatible with the operation of a general law of a statistical nature; and, moreover, that the statistical law expresses a general truth about the kind of choices which are made. It is quite reasonable, therefore, to regard the events at the fundamental level in the physical world as being analogously controlled by the individual acts of choice of a completely free supra-personal Being; and to do so does not, and cannot, run contrary to anything which can be known scientifically about the statistical average of a large number of such events. What we must infer, however, is that the statistical law, which is all that can be known scientifically, represents the general pattern of the control exercised by Almighty God through a vast number of entirely free and personal acts of choice.

We must emphasize again that the acceptance of this view, or any view like it, makes not the very slightest difference to the terms of the scientific investigation of the external world, or to the limits to which it may be carried. The point is that at any given stage of scientific development the causal sequence may be pushed back as far as the human mind is capable; until conclusions are reached which for the time being may be called the fundamental laws of the universe. These might be purely deterministic; or they might be of such a nature that science had to recognize the breakdown of physical causality. Fifty years ago they were thought to be the former, now they are believed to be the latter. It is indeed somewhat easier to reconcile the physics of today than that of yesterday with theological truth. For this we can be thankful. But the facts, whatever they are, can be viewed in either of two ways. The statistical laws of quantum theory, which we now believe to represent most satisfactorily the fundamental facts of nature, may be regarded as something ultimately indeterminist and irrational. They will be so regarded by a person to whom any but physical causality is anathema. Equally the laws of quantum theory may be regarded as the

pattern of God's ultimate control over physical events. They will be so regarded by a person who recognizes the incompleteness of the scientific description of the external world, and who is disposed to make the act of faith which enables him to unify the world of science and the world of spiritual experience. Our attempt to discern an adequate theology of nature must be based then on the recognition that the statistical laws of fundamental physics represent an ordering of events on the small scale by Almighty God, which is rational but not determinist.

We now ask, What are the consequences of accepting this view, as we pass first to the large-scale events of inanimate nature, and second to the events of the organic world? We have already seen that the laws of motion (strictly in their relativistic, not in their Newtonian form) and the laws of the electromagnetic field are true for larger assemblages, consisting of a great number of fundamental particles. These laws of large-scale physics are essentially determinist. Consequently, within the conceptual model which we are regarding as an approximate representation of the observable aspects of the external world, large-scale events follow necessarily and causally from those events on the small scale which are under the direct control of God. Thus the world exhibits that general regularity which reflects the will of its Creator and Sustainer, and which is the necessary framework for rational behaviour and the exercise of moral responsibility on the part of mankind. Still at the level of inanimate nature we must recognize the consequence that the external world is not immediately responsive to man's needs as he conceives them. Nature is morally neutral. Catastrophe in the shape of flood, earthquake, or volcanic eruption is the unavoidable, though only occasional, consequence of an ordered world, in which laws operate independently of their immediate consequences for human life and convenience. It might be supposed that God's ultimate control over nature, which we have asserted, would enable Him to avert such catastrophes: but in practice it is very hard to see on the basis of our present scientific knowledge how the kind of personal choice which He seems to have left open to Himself would enable Him to do so. Catastrophes of this kind do

not appear to be direct consequences of *single* events on the atomic scale, and therefore to be susceptible to what is commonly called 'divine intervention'. There seems to be no way logically of providing for the general regularity of nature without the attendant consequence that certain very large-scale events may, from the human point of view, be catastrophic.

We turn then to the organic world and ask, What are the consequences here of accepting the view which has been outlined above? Clearly we can extend the scientific account of nature to explain the highly complicated chemical and electrical processes on which life depends. Nobody, however, except a minority of mechanistic biologists, is going to assert that this 'scientific' explanation of living processes from below is the whole truth about the organic world. Least of all can the Christian theologian do so. We have moved to a different 'level of being' in the ascending scale: matter, life, mind, spirit. We have already recognized that each level is actualized by being embodied in that next below, and that each level reaches its highest point when indwelt by that next above. Must we not claim, therefore, that the material which forms the body of a living organism, while still subject to the general laws which apply to all matter, is now subject also to some higher principle of control? Exact definition of this higher principle is not easy. As we have seen already, there is some degree of interpenetration of the two levels of being, matter and life. The biologist's understanding of the life-process would seem to be safeguarded adequately, however, by describing it as a 'principle of organization'. The living organism, even in its lowest and simplest form, has the power of extracting from its environment those substances which it requires for growth, and of building up these substances into its own elaborate structure. The living organism has the power of protecting itself in a limited degree from an adverse environment; and of reproducing itself by cell division and growth. All this may be included under the general heading of 'organization'. The matter which forms the structure of a living organism is subject therefore to the normal laws of nature, and also to the control of a 'principle of organization'. Advancing one stage further in the scale of being

to those higher forms of life where we recognize the existence of mind, this argument can be repeated point by point. The processes of the human body and the human brain can be explained from below in scientific terms, including the biological principle of organization. But we cannot accept that this is a complete account of human life in its wholeness. In addition to its being subject to the normal laws of nature and to the biological principle of organization, the body of a man is subject also to a still higher principle of control. Again we can admit that there is a shading off as we pass from the higher to the lower forms of life. We must assert, however, the control of a new and higher principle in man, and possibly in the higher mammals generally. The 'principle of conscious choice', exercised in the light of thought processes, which include the power of calculating or foreseeing the consequences of choice, appears to be an adequate description of the new principle which operates at this higher level of being. We must claim then that the material of our own bodies is subject, first to the ordinary laws of nature, second to the life-principle of organization, and third to the mind-principle of conscious choice. We have then taken account of the facts at the three different levels of being so far considered. The energy which we derive from our food, the functioning of the circulatory system, the action of muscles and limbs regarded as mechanical devices, can be discussed in purely physical and chemical terms. The unconscious processes of growth, reproduction, glandular activity, the functioning of the central nervous system, can be discussed also in general biological terms. The exercise of conscious choice must be discussed in terms of mind. If we add to this account those elements of human experience which we call spiritual, we have a general picture of the way in which the different levels of being may be thought to be built up, one upon another, in the highest of living creatures.

An important question arises at this point of our discussion. Are we entitled to claim that an organism is subject to what we have called a higher principle, mind for instance, while at the same time being subject to the full operation of the ordinary laws of nature? 'No man can serve two masters.'²⁵ Are we asserting

the impossible when we claim that one and the same organism is subject at the same time to two different principles? An analogy may be helpful. The works of man provide us with any number of examples of inanimate matter subject at the same time to the normal laws of nature and also to the control of the human mind. To mention but a few: the engine of a motor car, a violin in the hands of an expert violinist, a piece of scientific apparatus in the course of an experiment. There does not seem then to be anything contradictory in the simultaneous operation of the laws of nature and the control of a human mind over material which is not a part of the human body. In fact we commonly think of tools as extending the reach and power of our hands; so enabling our minds to exercise a great measure of control over our environment. If the simultaneous control by mind and by law *outside* the living organism is not contradictory, there is presumably no reason why any contradiction should be involved when we are thinking of the materials which actually compose the organism. We recognize that the operation of the laws of nature imposes its own limits on the material which the mind seeks to control, so limiting the degree of control of which the mind is capable. The engine of a motor car becomes over-heated and loses power if over-driven; the violin is useless if the strings break; the scientific apparatus may blow up if improperly used. Similarly, the laws of nature impose limits on what the human body can achieve in response to the mind. However, the parallel must not be pushed too far; for mind and body are different aspects of a single organic whole, rather than separate entities that can be taken apart. A man is not a mind inhabiting a body; nor a body activated by a mind. He is a complex whole, in which different activities, different levels of being are distinguishable only in thought. The mode of their interaction is outside our scope, except in so far as we may legitimately visualize the materials of our bodies as being subject simultaneously to the operation of the laws of nature and to the conscious control of our minds. Moreover, if we accept this principle, we may regard the conscious control which our minds exert over the material of our bodies as analogous to the conscious control which we have already

claimed that God exerts over the whole material world. It is an interesting speculation to suppose that the control is exerted in the same manner, at the fundamental level. But while the divine control is primary and exercised throughout the created world, the human control is secondary and limited to the human body. Thus the will of God is the primary cause of all that occurs in the whole created world. My own will is the secondary cause of all the conscious activity of my own body. Surveying the whole organic world, we can hardly avoid the conclusion that a rudimentary power of choice, akin to the freedom of the human will, exists at all levels of life. The facts of the organic realm become less and less deterministic the further we move from the primitive levels of life towards the human level. As we advance from the inanimate to the animate through the manifold richness of the whole created order, the facts become intelligible more and more in theological terms. The lower can be interpreted only in terms of the higher; for interpretation is something more than mere causal explanation.

In seeking a theology of nature we have tried to understand how the laws of science can be integrated into the larger view which regards nature as the arena of the activity of God.²⁶ Many problems have necessarily remained untouched. Much could have been said, for instance, on the relationship between the physical concept of entropy and the degree of order achieved in the organized structure of a living creature. Much could have been said too about the current view of the cause of mutations in relation to the molecular structure of genes, at which level we have postulated direct divine control. Much also about the moral neutrality of the inanimate world, and the apparent indifference of the organic world to the fact of suffering. These matters have only been touched upon. The existence of aggressiveness throughout the organic world and the fact of sin at the human level may well be conceived as belonging together. The view that the whole created order suffers in various ways from the consequences of something which Christian theology calls the 'Fall' is entirely tenable. Imperfections of whatever kind in a world which is claimed to be God's creation and the arena

of His activity necessarily constitute a serious moral and intellectual problem. Total redemption of the whole order of nature can reasonably be held to be included in the ultimate purpose of God, and the goal towards which the whole order of nature is moving under the guidance of divine omnipotence. Indeed it is difficult to give any ultimate meaning to creation as an act of God if the greater part of the natural order is to be excluded from the sphere of Christian redemption. Such a world as this, however, appears differently to different minds and outlooks. To the unconverted intellectual it appears to be a more or less tidy scientific system, largely rational, but at the ultimate level amenable only to statistical treatment. The loss of that faith which can dare to *interpret* the natural order in terms of the highest which we can know is the cause of the crisis of understanding through which the scientific age is passing. To the simple Christian believer all too often the world appears to be *directly* obedient to the will of God; and consequently presents almost unbearable problems for faith, because the mode of operation of scientific law and the concept of secondary causality are not understood in the least degree. By the Christian theologian, however, who is also familiar with the development of modern science, the world is recognized as the creation of God and the arena of His constant activity under the limitations which He has voluntarily imposed upon Himself in creating it. The constancy of God's purpose, His ordering of events at the fundamental level, His over-ruling providence and His amazing love and patience in His dealing with His creatures, are discerned with gratitude, and with some degree of understanding. Problems will always remain, both intellectual and spiritual: but a sure intellectual faith will accept their existence and the tensions which they involve, in the certainty that the God who rules is the God and Father of our Lord Jesus Christ.

CHAPTER II

Natural Science and the Kerygma

A CRISIS OF BELIEF

THE past four-and-a-half centuries in the history of the western world have been marked by intense criticism of all received traditions: philosophical, theological, cultural, and political. We have seen already that modern science and the new theological outlook both took their origin from parallel questionings and rejections of earlier traditions; which, having been accepted for hundreds of years on authority, had tended to cramp the free movement of the human mind. The modern critical study of the New Testament is in the direct line of descent from the new understanding of the scriptures in the early sixteenth century, when Erasmus studied the recently recovered Greek text, and Colet expounded the theology of St Paul with a freshness which had been unknown for more than a thousand years. It soon became clear that not even the sacred books were to be immune from the same critical examination which was accorded to ordinary secular documents. So far from being merely destructive, however, such criticism was felt to be demanded in the interest of the truth. Intellectual integrity was recognized to be a higher virtue than credal orthodoxy; and if the two could not be had together, the former was to be preferred. Accordingly, scientific methods of examination have been applied uncompromisingly to the books of the Bible, and the critical approach to both the Old and the New Testaments must be recognized as forming part of the general scientific revolution which has characterized

them. It is therefore not without significance that those biblical scholars, who by spiritual allegiance and affinity have stood furthest from the Catholic tradition of Christian theology, have been in fact the most ruthless, radical and revolutionary in their conclusions. While members of the German reformed Churches have produced the most drastic evaluations of the contents of the New Testament; the English theological tradition has sought to combine a critical approach with as close an adherence as possible to the historic creeds, sometimes walking delicately on a veritable razor-edge; and the Church of Rome, officially at least, has not accepted even the priority of Mark over Matthew. It is not only theological and historical presuppositions, however, which have notably affected the biblical criticism of the past hundred years. After making somewhat slow progress until about the middle of last century, the pace of biblical studies was greatly quickened at almost the same time as the historic conflict between modern science and the Christian religion become most fierce. Scientists asserted the uniformity of nature as an absolute principle, proclaimed the evolutionary origin of the human species, and challenged the uniqueness of Christianity on the ground of modern discoveries in anthropology and comparative religion. Any interpretation of the Bible, and of the New Testament in particular, was made in the context of an educated public opinion which was by no means disposed to accept the supernatural basis of the Christian revelation and the supernormal events through which, according to tradition, it had been given. Clearly the new point of view was largely shared by biblical critics; who also not unnaturally came to realize that their evaluation of the contents of the Bible stood little chance of being accepted unless it took account of the scientific revolution. Accordingly, there has been a strongly marked tendency on the part of biblical scholars, particularly on the continent, to smooth out the supernatural and supernormal elements of the Bible as a whole, and to present an extremely radical interpretation of the New Testament in particular. If the accounts of supernormal events could no longer be accepted at their face value, could not the essential truth of the Christian

religion be safeguarded by emphasizing the ethical and social aspects of our Lord's teaching? Looking back on the period of the liberal theologians, while we may have the greatest sympathy with them in the unenviable situation in which their work was done, we can hardly avoid the impression that they were engaged on a gigantic effort of face-saving on behalf of historic Christianity. Fortunately, time has shown not only the falsity of their point of view but also how unnecessary it is to approach the gospels with these particular presuppositions. The Christian conscience was profoundly unsatisfied by any of these modern attempts to interpret the New Testament by the method of subjective selection. By the middle of the present century we have at least realized that the process of evaluation must do justice to the New Testament as a whole; and that any avoidance of its essential challenge by a process of neglecting any one of its aspects is foredoomed to failure. It will be worth while, however, to glance at the main stages in the journey by which the criticism of the New Testament has advanced towards its present position.

We may take Harnack¹ (1900) as typifying the liberal school which, at the height of the contest with the older scientific outlook, insisted on emphasizing the ethical and social aspects of our Lord's teaching at the expense of the supernatural content of the gospels. The kernel of the New Testament message was to be found in the Fatherhood of God and the brotherhood of man. Paul and John, it was asserted, had been guilty of turning the simple teaching of Jesus into the Catholic sacramental tradition. The Jesus of history could be discerned only through a mass of interpretation, which was essentially a misunderstanding both of Him and of His message. The work of modern criticism was supposed to consist therefore in getting behind the theological façade to the underlying truth, which was alleged to be essentially simple—and, one might add, in keeping with the outlook of the liberal school of theologians! Schweitzer's² great book published in 1910 is a landmark in the reaction against the liberal school, and therefore against wholesale concessions to the scientific outlook of the age. To reduce both Jesús and His message to the dimensions of prophecy was plainly untrue to the

documents. Behind the gospels as we now have them stands a Jesus altogether rougher and more enigmatic than the simple prophet of personal piety. The eschatological element of the gospels must be taken into account. Jesus expected His Parousia and the consummation of history, events which did not take place; with the result that the apostles were driven to place the emphasis of their work on the Church instead of on the Kingdom. Again, as we now realize, this is an undue simplification. The reaction, however, had succeeded in its main object. Henceforth, scholars were able to insist on valid canons of criticism, and to avoid the pitfall of neglecting this or that aspect of the gospels in the interest of rendering their interpretation acceptable to a particular section of educated opinion. So remarkable indeed has been the reaction against liberal theology and its aspirations that a generation of biblical scholars³ has now arisen which, whatever its achievements (and they are many), is prepared to discuss the miracles of our Lord without even a recognition that their historicity has been called in question by the modern scientific understanding of nature. Side by side, however, with this apparent neglect of the challenge of scientific thinking, the so-called modernist school of theologians has continued to criticize with a blue pencil, refusing steadfastly to accept as historical any events which appear not to accord with the principle of the absolute uniformity of nature. Bishop Barnes' book⁴ published in 1947 though in its theological and historical outlook belonging to a much earlier period, may be regarded as setting forth the modernist attitude, and starts from the assertion that the 'uniformity of nature—is fundamental in modern science'. From such a beginning as this little remains to be done except to demonstrate how the 'misunderstanding' of Christ's work by an uncritical group of converts came about during the first fifty years or so after His death. The demonstration will be found convincing only by those who feel compelled to accept the same starting point, but undoubtedly it does violence to the New Testament.

The past thirty years have witnessed the rise of two entirely new techniques for the study of the New Testament documents:

techniques associated in the first instance with the names of Dibelius and Bultmann. The form critics have studied the manner in which the gospel was preserved orally before being committed to writing, with a view to understanding the interests and motives of the earliest Christian community. In this respect form criticism marks a considerable advance on the earlier radical evaluations of the gospel tradition which were content merely to assert that the New Testament writers had consciously and deliberately overlaid an originally simple gospel in the interest of a new ecclesiastical organization. Form criticism offers a technique for determining this issue; whereas previous critics had prejudged it. But it may still be questioned whether the parallel which is adduced of the transmission of folklore in general is an entirely legitimate one. Be that as it may, form criticism has advanced a long way since Dibelius⁵ first developed his technique of studying the gospels in isolated fragments. So far from casting doubts on the entire historicity of Jesus of Nazareth, as at one time appeared to be possible, it has led to a real vindication⁶ of the Christian *faith* as something *originally theological*; though, as an eminent writer⁷ puts it, doubt still remains 'whether the study will help us to draw nearer to the central Figure of the gospels, in His historical manifestation'. Without question the historicity of the supernormal occurrences related in the gospels remains a stumbling block for many writers of the form critical school. One cannot help suspecting that apart from an overwhelming presupposition against the occurrence of the miraculous, their studies might have led to very different results. However, since the publication of Bultmann's⁸ famous essay the theological debate on the New Testament as a whole has taken an entirely new turn. Bultmann now sees the whole problem as contained within the use by the New Testament writers of a completely mythical cosmology. Not only the accounts of supernormal events, such as the Virgin Birth, the miracles, the Resurrection, and the Ascension, but the entire biblical outlook, conditioned (so it is claimed) by Jewish apocalyptic and gnostic ideas of redemption, represent a mythological view of the universe which has passed away, and which

must be replaced by a new world-view before the gospel becomes meaningful to the scientific age. We are no longer to ask, Is this historically true? or, Can this statement be accepted at its face value? Instead we are to recognize that the New Testament writers, being children of their own age, employed modes of expression and theological concepts which have ceased to be valid, and whose acceptance by the modern world can only result in a kind of schizophrenia. Bultmann insists therefore that neither selection nor subtraction offers any hope of a solution which shall be valid for modern man. •The kerygma indeed must stand in some sense; but, asserts Bultmann, it must be completely restated in contemporary terms. It must be demythologized; and the medium proposed is the contemporary philosophical system known as existentialism.

Now it would be totally unfair to suggest that the presence of supernormal elements in the gospel records has been the salient problem which New Testament criticism has faced. Yet without doubt it is possible to discern this particular objection and the reaction against its proposed solutions running right through the modern critical movement. Indeed all these different critical approaches to the gospels, though they differ widely from one another, are yet held together by the fact that they represent the response of biblical scholars to the new world-view of the natural sciences as it is commonly understood. It is a story of bowing before the altar of science; followed by a healthy Christian reaction against any such idolatry; succeeded yet again by both a modified worship of the new gods and a turning away of the eyes 'lest they behold vanity'. Some critics have credulously swallowed all that nineteenth-century science had preached; others have sedulously avoided even noticing that science had created a problem for belief, and have fixed their attention (as it happens very valuably) solely on the theological issues of the New Testament. Yet it can hardly be denied that but for the conflict with scientific opinion the modern critical movement would hardly have started on its way. To the man in the street (if there is one) the scientific problem of belief is primary—and no school of New Testament criticism really came to grips with

it until Bultmann published his essay on 'The New Testament and Mythology'. As I shall attempt to show, however, Bultmann's solution is altogether too drastic; but that he made it is a cause for thankfulness; for by so doing he has brought New Testament studies face to face again with one of its primary problems. *The necessity of discovering what actually happened is absolutely basic, and underlies all theological interpretation whatever.*

The common presupposition which underlies a great deal of what has been written on the New Testament is that the events in the life of Jesus of Nazareth cannot have been of a wholly different order from the events of our own common experience: in other words, that the occurrence of the miraculous or the supernatural in the records does not and cannot correspond to historic reality. Accordingly, *either*, such events must be deleted from the records with a blue pencil; *or*, attention must be fixed solely on the quality of our Lord's life and the content of His preaching; *or*, the miraculous and the supernatural content of the gospels must be understood as a vehicle of theological truth quite apart from the question of whether they actually happened; *or*, the whole gospel must be demythologized so as to preserve its spiritual significance and message in a medium which is intelligible and acceptable to the modern mind. In all this we can detect different qualities of objection to the miraculous and supernatural elements of the gospels as the various schools of criticism succeed one another. The word 'modernism' though originally referring to a movement within the Roman Church, has come to be associated with far and away the crudest form of the objection to the supernatural. These parts of the gospel narrative, so it is said, are the work of simple, credulous folk: therefore delete them with the blue pencil, and explain the faith in our Lord's Resurrection as you may! The form critics have sometimes asserted that the miracle stories and 'legends'⁹ are the creation of the Christian community during the oral period. They are the cult stories, created for edification, transmitted uncritically, and finally incorporated into the written gospels. Their creation and transmission, however, should not be taken to imply any lack of honesty on the part of the community. In

producing the gospels the early Church had no intention of providing the materials for a biography of Jesus in the modern sense. Indeed form criticism eventually renounced all hope of the 'recovery of plain biography' and contented itself with understanding the Jesus of faith. Finally, the school of Bultmann insists on treating the miraculous and the supernormal events recorded in the gospels as part only of a much larger mythological framework in which the whole New Testament is set; and asserts that just as myth was the normal means of expression of what deeply concerned men in the ancient world, so an existentialist philosophy is the appropriate medium today. Without doubt this is the least naïve of the modern radical approaches to the problem of the New Testament. We see, however, that it is a single bogey which has dogged us all the way: the presupposition that the miraculous and supernormal events described in the gospels cannot be strictly historical in the sense in which we understand the word. Clearly this presupposition must be faced squarely in the light of *modern* science, i.e., the science of the mid-twentieth century, and in the light of our understanding of the conceptual nature of the language of the sciences. But before proceeding with this task we will do two things: (1) We will look at one extremely disturbing consequence of the present critical position; and, (2) we will try to discern what lessons of permanent value are to be derived from the form-critical and demythologizing schools of New Testament study.

What then have been the consequences for religious belief of the critical examination of the Bible? Undoubtedly great good has come for those who have taken the trouble to think their way through it. No theologian of any repute would deny that biblical criticism has given us an altogether higher view of inspiration than the mechanical view which had become almost universal a century or so ago, and a deeper theological insight into the teaching of our Lord and the redemption offered in His Name. So much has been pure gain—provided we have followed the argument, and provided we have the courage to use our intelligence to the glory of God. But it cannot be denied either that many simple people have been exceedingly perplexed.

Amid the clamour of voices they have not known what to believe. In the circumstances it is not in the least surprising that thousands of simple folk have continued to understand their Bibles quite literally, and that many thousands more have ceased to hold the Christian faith. What has been surprising, however, and most disturbing is the rise of the new fundamentalism, more particularly among grammar school boys and university undergraduates. This new fundamentalism insists on turning a blind eye to all that the critical examination of the Bible has revealed; and instead of accepting new insights with gratitude, challenges young people to a blind faith and to a spiritual fervour which can only be given at the expense of a closed mind where religion is concerned. It is indeed a strange and disturbing reappearance of an old need; and moreover a timely warning that the critical pendulum has swung too far. The majority of men need an absolute spiritual authority on which to rest their religious belief and practice, an absolute which can be accepted without question. Christianity can base its claim to complete allegiance only on a body of revealed truth which is unquestioned by the main body of its adherents, and to which all problems of faith and morals can be referred. The pre-Reformation Church and the modern Roman Catholic Church have precisely such an authority in the papacy. The Reformation in challenging the papacy substituted the Bible as the ultimate authority for Christian people. It is true that in theory at least the authority of the Church remained either level with or behind that of the Bible, for it was still the Church which defined the authoritative place of the Bible; but in a divided Christendom the single voice of the Church was hard to find—the average Christian is not in the habit of reading the early fathers! For the simple believer, therefore, the Bible became itself the absolute authority; and as the reading public increased in numbers so a literal interpretation of Holy Scripture became the norm. Modern criticism has whittled away the authority of the Bible in the sense that the plain man understands authority. The deeper insight of the theologian and the more spiritual sense of biblical authority, which his critical studies have engendered, have been won at

the cost of seeming to undermine the Bible from the point of view of a great number of ordinary Christian believers. Yet man insists that his authority in religious matters shall be secure. The fool may build upon sand, but the Christian must feel the rock under his feet. If biblical criticism appears to be undermining what he believes to be his rock, then it must be resisted. The all-or-nothing mentality is not prepared to accept some of the assured results of critical study and reserve judgement upon others. It sees its only chance of security, and the only chance of survival for the Church, in rejecting all its conclusions and insisting on the verbal inerrancy of Holy Scripture. In the present state of knowledge to do so may be ultimately a form of idolatry, a setting up of a false absolute; but the practice of religion has seldom been entirely separated from idolatry in some shape or form. Such over-simplification always has its attractions for certain types of mentality; though the sudden resurgence of fundamentalism among otherwise educated men is as unexpected as it is disturbing. This modern grasping after an absolute spiritual authority other than Christ Himself serves to underline our general contention that biblical scholarship has erred in not giving adequate consideration to the issue which, to the outsider at least, is primary: the question of the validity of the 'scientific' presupposition which has formed the background of the whole critical approach to Holy Scripture.

PERMANENT CONTRIBUTIONS OF BIBLICAL CRITICISM

In seeking to discern what lessons of permanent value for our discussion are to be derived from the higher critical study of the Scriptures, we shall of course take the results of literary criticism for granted; and we shall devote no attention whatever to the broad theological conclusions of scholarship. We shall not, however, adopt this plan out of any disrespect for the work in question but rather because we are concerned with a far narrower issue and because it is desirable to define our critical position at the outset.

It is clear beyond question that the gospels are not con-

temporary chronicles of the events of our Lord's life. Facts they undoubtedly contain; and the intention to record facts was one (among others) of the reasons which led to their composition. Perhaps too much should not be read into the first four verses of St Luke's gospel, but at least we are entitled to infer that the author was not indifferent to factual accuracy. If we accept the now general view that the authors of the four canonical gospels were respectively a Jewish Christian scribe¹⁰ of the last decade of the first century, a missionary assistant of Paul and Barnabas, a travelling companion and interpreter of Paul, and an Ephesian mystic of the early second century, we shall not assert that any one of them was in a position to draw on his own direct personal recollection of the events which he described. Without doubt the evangelists belong to the second generation of Christian believers, to whom the faith had been mediated by the first. We shall bear in mind, however, that two of them at least had had contact with apostles; and indeed that one of them, Mark, wrote while it was still possible to check the facts from first-hand sources. The evangelists are not so far removed from the events which they narrate as to create any *prima facie* case against their substantial accuracy.

Nevertheless, a period of oral transmission had intervened before the records were reduced to writing. We are forced to accept the conclusion that during this period the tradition circulated chiefly in isolated fragments each of which was handed on for its edificatory or didactic value. We are justified in looking for the *sitz im leben* of each such fragment, for only if we know the value placed on it by the Christian community itself can we discern its theological significance. But we shall not be inclined to see the community as the originator of such fragments—it requires a person of genius to originate anything, and genius was presumably as rare in the early Church as it is in the modern. The function of the Christian community was to preserve and to transmit, not to originate. The question arises then, How accurately can we suppose that the community did in fact transmit the fragments which were passed on every time a sermon was preached or a convert was instructed in the faith? Vincent Taylor¹¹

has shown by direct experiment that with a single line of oral transmission the 'bare bones' of a narrative are preserved with substantial accuracy, albeit with a gradual abbreviation of detail. The Gilbertian flair for adding 'artistic verisimilitude to an otherwise bald and unconvincing narrative' can hardly be held to provide a close analogy to the oral transmission of the facts of the gospel! In the case of the early Christian community not one but many interdependent lines of transmission existed. The effect of such multiplicity would be towards greater general reliability though not necessarily to absolute historical accuracy. We may reasonably grant, however, that the early Christians enjoyed a miracle story for its own sake; and that the earliest evangelist appears to have shared this fault (if fault it is) with his contemporaries. Hence we shall be ready to find a certain heightening of the miraculous element in the tradition in the course of its transmission orally. The use of Mark by Matthew provides some evidence of the same 'fault' even after one line of tradition had been committed to writing; though it lends no support whatever to the view that the supernatural content of the *official* tradition increased substantially as time went on. The production of the apocryphal gospels during the following century is ample evidence that the tendency to dwell unduly on the marvellous, and even to invent miracle stories, existed at any rate in some quarters; though the selection of the canonical four gospels is proof of the attitude of the authorities of the early Church towards this kind of literature. We shall feel justified in acquitting the early Christians of deliberate untruthfulness in any heightening of the miraculous elements of the tradition; but we shall naturally regard them as somewhat uncritical; and in reading the account of any supernatural occurrence we shall be on our guard to enquire into the theological reasons which may have dictated the embellishment of miraculous details. All this no doubt will be agreed by the majority of sober-minded biblical students, but the vital question from our point of view is this: Have we the right to dismiss the miraculous element of the gospels as purely the creation of religious genius? The answer, I believe, is that we have neither theological nor historical reasons for doing so.

We can dismiss the miraculous element in its entirety only on the basis of certain scientific *presuppositions*; and this we refuse to do *before* we have examined those presuppositions more closely. We admit that the supernatural element in the gospels presents a serious problem in the scientific age. More than this we cannot say yet.

Let us now examine Bultmann's thesis.⁸ Bultmann begins by recognizing that the cosmology presupposed by the New Testament writers is entirely mythological. He cites the conception of a three-storey universe, the play of supernatural forces in the lives of men, possession by evil spirits, the expectation of cosmic catastrophe, the occurrence of miracle—from our point of view, however, to include this last item is to beg the question under discussion. He claims moreover that 'the idea of original sin as an inherited infection is sub-ethical, irrational, and absurd'.¹² He is prepared to explain the efficacy of the New Testament sacraments¹³ of baptism and the Eucharist as 'due to suggestion'; the doctrine of the atonement is branded as implying a 'primitive idea of God'.¹⁴ Bultmann sees the Resurrection of Jesus as presented in the New Testament as the 'resuscitation of a corpse',¹⁵ and ascribes to Gnostic influence the very idea of a Christ who died and rose again. In seeking to criticize the essay from the standpoint of Catholic orthodoxy it would be difficult to be fair, were it not for the fact that Bultmann poses the question, 'Does the New Testament embody a truth which is quite independent of its mythical setting?'¹⁶ and that he admits that the New Testament kerygma stands as a whole.¹⁷

What does Bultmann mean by myth? We read, 'Myth is an expression of man's conviction that the origin and purpose of the world in which he lives are to be sought not within it but beyond it—that is, beyond this realm of known and tangible reality—and that this realm is perpetually dominated and menaced by those mysterious powers which are its source and limit. Myth is also an expression of man's awareness that he is not lord of his own being. It expresses his sense of dependence not only within the visible world, but more especially on those forces which hold

sway beyond the confines of the known. Finally, myth expresses man's belief that in this state of dependence he can be delivered from the forces within the visible world.¹⁸ If this wide definition of the term be accepted, it is difficult to see how man can make any statement whatever of religious significance except in the language of myth. Bultmann claims, however, that we are not for ever committed to expressing the inherent truth of the New Testament in the mythical language of the New Testament, and proposes instead that we should state it in terms of modern existentialist philosophy, with its categories of anxiety and self-commitment. Life in the spirit involves fulfilling an imperative. But 'faith in the sense of obedient self-commitment and inward detachment from the world is only possible when it is faith in Jesus Christ'.¹⁹ Bultmann, therefore, raises the question whether the fact of Christ, and of faith in Him, does not constitute 'a remnant of mythology which still requires restatement'.²⁰ After a further consideration of faith from the point of view of existentialism, he concludes that 'faith is only an abstract idea so long as God has not revealed his love'.²¹ There must therefore be an event on the plane of history in which man can put his faith, if there is to be any deliverance. Bultmann therefore accepts Jesus as an historical person, and the Crucifixion as an historical event; but insists that the Resurrection is 'definitely non-historical'.²² He admits that 'this combination of myth and history presents a number of difficulties',²² and asks 'whether all this mythological language is not simply an attempt to express the meaning of the historical figure of Jesus and the events of his life; in other words, the significance of these as a figure and event of salvation'.²³ Christ's pre-existence and the Virgin Birth are matters of little importance to Bultmann. In mythological language these statements mean only that 'he stems from eternity, his origin transcends both history and nature'.²³ Bultmann bids us separate the fact of the Cross from its New Testament mythological interpretation as an act of atonement made by a pre-existent personage. Instead we are to see the Cross in its redemptive aspect 'not as an isolated incident which befell a mythical personage, but as an event of "cosmic" im-

portance'. To believe in the Cross is 'to make the cross of Christ our own, to undergo crucifixion with him'.²⁴ The Resurrection, according to Bultmann, 'is the eschatological event *par excellence*';²⁵ and is 'an article of faith, just as much as is the *meaning* of the cross itself'.²⁶ In the final summing-up the shade of Luther haunts us with a vengeance: Christ 'meets us in the word of preaching and nowhere else. The faith of Easter is just this—faith in the word of preaching'.²⁶ Easter Day is an historic event only in the sense that it is 'the rise of faith in the Risen Lord, since it was this faith which led to the apostolic preaching'.²⁷ 'The historical problem', we are told, 'is scarcely relevant to Christian belief in the resurrection'.²⁷ Finally we read, 'The agent of God's presence and activity, the mediator of his reconciliation of the world unto himself, is a real figure of history. Similarly the word of God is not some mysterious oracle, but a sober, factual account of a human life, of Jesus of Nazareth, possessing saving efficacy for man'.²⁸

What are we to discern here of permanent importance? We may acquiesce perhaps in the strictures on the mythological cosmology which was apparently accepted by the New Testament writers: the three-storey universe, the evil spirits, the expectation of cosmic catastrophe. We cannot acquiesce in Bultmann's crude restatements of the theology of original sin, atonement, and grace; nor in his condemnation of a grossly materialistic view of the sacraments, which in any case is not the New Testament view of them (though this is none of our business). We can grant that the existentialist philosophy has a contribution to make to the understanding of deliverance in the personal life of the Christian, and in the meaning of the Cross as a mystical sharing in the crucifixion of Christ. But we part company with Bultmann when he insists that the historical problem of the Resurrection is scarcely relevant to Christian belief; and we refuse to go with him when he exalts the fact of the preaching at the expense of the truth of what is preached. Demythologization, if carried to this limit, not only discloses its origin in the most radical German reformation tradition, but is in danger of reducing the faith of the Christian Church

to mere subjectivism. If the facts of the gospel, or what we have supposed to be the facts of the gospel, will not stand up to historical analysis, let us say so, and give up the pretence of believing in them. If the truth is only that Jesus of Nazareth was the first exponent of an attitude to life which is akin to what we now call existentialism, and that the gospel is no more than the proclamation that we must die in order to live, let us accept this—but do not let us confuse this new religious philosophy with historic Christianity for it is a totally different thing. On the other hand, if as Bultmann admits, 'faith is only an abstract idea so long as God has not revealed his love',²¹ and if Jesus 'stems from eternity',²³ and if the Cross in its redemptive aspect is 'an event of "cosmic" importance'²⁴ then let us by all means proceed with the historical examination of the evidence of the New Testament, and with the philosophical examination of the presupposition against the occurrence of miracle with which the whole critical discussion began.

It appears then that the prime importance of Bultmann's essay is that it focuses attention on the nature and place of myth in the presentation of religious truth; but this does not commit us to accepting the view that the New Testament is mythical through and through, or that it is impossible to extract from it any reasonably certain historical knowledge of non-mythical supernatural events.

The language of myth undoubtedly has its place in the statement of religious truth. The ordinary language of every-day life is capable of describing purely mundane events as they are directly apprehended by the senses in the large-scale universe. It is useless for describing events which transcend this common experience. Thus every separate study known to man requires its own particular language, terms, and concepts (suitably defined) with which it may supplement the terms of every-day speech. Art requires the language of mystical appreciation, science requires intangible concepts which are defined operationally, religion requires myth and symbol; and in each case the lack is made good partly by coining new words derived from the languages of antiquity, partly by employing common words in

a new technical or symbolic sense. If we say that the language of myth has its place in the statement of religious truth we can equally well say that it has its place in the statement of scientific truth, for the concepts of the sciences are often quite as intangible as those of religion. We see examples of the use of myth at totally different levels in the following: (1) The story of the fall of man, in the third chapter of Genesis; (2) The statement that Christ 'sitteth on the right hand of the Father,' in the Nicene Creed; (3) The employment of scientific concepts such as potential energy, and probability, in describing the processes of nature. But when the gospels tell us that Jesus gave sight to a blind man, or raised a dead man to life, can we honestly assert that they are using mythical language in any of these senses, or in any analogous sense? There is a world of difference between these statements, and the statement that the serpent spoke to Eve and tempted her to do evil. The one refers to events which were ostensibly witnessed by the primary source of information; which are presumed to have happened in the immediate past (at the time of writing) and to have been objective occurrences. The other refers to an 'event' of the remote past, without witnesses, and quite clearly is a story created by religious genius with the express purpose of making real a spiritual situation. The fact that each 'event' is regarded as an encounter with evil spiritual forces, does not of itself make them equally unhistorical or equally mythical. Again, when the gospels tell us that the disciples saw and conversed with Jesus of Nazareth three days after His death and burial, can we honestly assert that they are using mythical language in any one of the senses to which we have referred above? There is a world of difference between the statement that Christ rose from the dead and appeared physically or quasi-physically to His disciples, and the statement that 'He sitteth on the right hand of the Father'. The one refers to an ostensibly objective happening in a place, and in the presence of people, which can be identified. The other refers to an 'occurrence' presumed by faith, in a sphere which is totally beyond the reach of the human senses. Granted that the Resurrection of our Lord, presuming it to have taken place, was a

unique and supernormal event, requiring a unique manner of presentation (in which the language of myth might conceivably play some part) there is still the claim that it was an event in time and space, attested by chosen witnesses. Bishop Gore frequently drew a distinction between articles in the Creeds which referred to 'realities beyond history,' and 'events on the plane of history'. Perhaps the distinction is not quite as sharp as Gore supposed;²⁹ but it is still a valid distinction, which we forget at our peril. We are prepared then to meet with some limited employment of the language of myth in the gospels; but the problems of New Testament historical criticism and the philosophical examination of our scientific presuppositions still remain central. To these we must return, not in the least convinced that the solution of demythologization proposed by Bultmann is a valid way out of our difficulties.

SCIENTIFIC PRESUPPOSITIONS AND THE GOSPEL

The question at issue is quite simple: Can miracle happen? Or, more accurately, have we the right on philosophical or scientific grounds to assert that there can be any departure from the normal regularity of nature, such as would be involved in the occurrence of miracle? We have, of course, based the whole of our study of the external world on the regularity of natural processes. This normal regularity of nature inevitably implies that miracles, presuming them to be possible at all, are highly improbable from the scientific and philosophical point of view. This is not in the least surprising; for we cannot argue from the regularity of nature to the rule of God, and then expect to find frequent departures from regularity which also are claimed as evidence for the rule of God. In the nature of the case miracles are rare. The issue from the philosophical stand-point, however, is between 'highly improbable' and 'quite impossible'.

The first point which we must notice is that this question is not strictly a question of 'science' at all. It cannot be settled from any scientific evidence or principle whatsoever. It belongs to the wider field of natural philosophy. It is a question of the

interpretation of scientific evidence and principles in the light of other principles of wider application. It is not a question of science for this reason: Natural science is a conceptual system for the representation of the external world. It is stated in the form of propositions which relate concepts. The concepts are derived from observation of the external world and correspond to certain observable aspects of that world. The relations between them, which are the laws of science, are therefore derived from observation also. Let us suppose that in the entire universe there is a total number N of observable facts or events. Of course, N is a very large number, but we need not suppose it to be infinite on any theory of the universe since we restrict our discussion to terrestrial events. Let us suppose also that all the scientists that have ever existed have observed a total number N' of events. The number N' is very large also, but it is very much less than N . The laws of natural science are general statements which represent the total knowledge which we possess as a result of observing these N' events. By what principle of logic can we assert that the laws derived from the observations of the N' events are equally applicable to the $N-N'$ events which have not been observed? By no principle of logic whatever can we do so. It is a matter of experience, however, that when new events are observed the observations can generally be subsumed under the laws which have already been formulated on the basis of the N' events. I wrote 'generally'; because from time to time events are observed which do not accord with the laws of science as already formulated; which require some modification of the already existing laws. However, because generally speaking the laws of science are found to have a far wider application than to the original number of events N' on which they were originally based, scientists are in the habit of *assuming* that the laws of science, as they exist at any given moment, are of universal application. But this is pure assumption, logically speaking; though for practical purposes plausible enough. Only if the laws of science were derived from observation of the total number N of events could we assert categorically that they are of absolutely general application. As long as there remains one single

event, which has not been observed scientifically it is impossible logically to insist that the laws of science have a universal application. That one event which remains unobserved could be the one exception. Hence it follows that on strictly scientific grounds we can never assert that miracle is impossible. The most we can say is that our experience of the external world, and of the laws which have been found to represent its observable aspects adequately in the N' events which have been observed, does not lead us to expect the occurrence of miracle; or that miracle seems to be empirically improbable.

The question of the possibility or impossibility of miracle is therefore, a question of the interpretation of scientific evidence and principles in the light of other principles of wider applicability. If we recognize that such principles exist, then we can pursue the question further. If we do not, there is nothing further to be said. However, from the general position of Christian theology there is a great deal more to be said. For in this case we have claimed already that as a means of understanding the external world natural science is incomplete. Natural science deals only in secondary causes: we need to examine the realm of primary causes. Natural science explains the higher in terms of the lower: we can hope to *understand* the lower only in terms of the higher. Matter and life require mind and spirit for their interpretation. The Ultimate Reality is supra-personal. Not only is God the Creator and Sustainer of all else that exists, but the created world is the arena of His activity. All that occurs in the external world must therefore be ascribed to Him as its primary cause, though in doing so we still recognize the validity of secondary causality. A tentative approach towards a theology of nature was sketched in a previous section. To that tentative theology of nature we now return in the hope that by its means we may be able to answer the question about the possibility of miracle.

A distinction of principle must be drawn between fundamental laws which may be regarded as imposed directly by God on the matter which composes the external world, and laws which are causally connected consequences of these fundamental laws. We saw good reason in the present state of scientific

knowledge to suppose that the laws of quantum physics may be regarded as fundamental in this sense; and we recognized that the laws of the large-scale universe follow causally from the quantum laws when applied to assemblages of large numbers of particles. The fundamental laws are statistical, in the sense that they do not state certainties but only probabilities. This means that the determination of individual events on the exceedingly small scale is left remarkably open. The laws of large-scale physics, being statements of the average behaviour of a very large number of individual particles, are remarkably deterministic, however. This means that events on the large scale follow with a high degree of certainty from events on the small scale. There is reason to suppose that this large-scale determinism applies to matter in all its forms, both inanimate and animate. But how is the behaviour of the individual particle 'determined'? We have suggested that it is reasonable to regard the events at the fundamental level in the physical world as being controlled by the individual acts of choice of the completely free supra-personal Being, Whom we call God, in a way analogous to the exercise of our own human power of choice. We showed, moreover, by analogy that such a view safeguards both the statistical nature of the known quantum laws, and the fundamental divine control to which the world is subject. We saw too that in the organic realm, though the laws of inanimate matter on the large scale impose certain limitations of their own, a satisfactory account of life must recognize the control both of a 'principle of organization,' and, in conscious activity, of a 'mind-principle'. We suggested that the conscious control of the mind over the body might be exercised in the same manner as God's control over matter at the fundamental level. Admittedly this last suggestion is only speculative; but it does appear to throw some light on the relation between human and divine control over material.

Now this analogy between the conscious control of the human body by the human mind and the primary control of the material world as a whole by the divine Mind should enable us to form some conception of what would be implied by the existence of

miracle, and should lead us to an answer to our question about the possibility of miracle.

The primary causality of God has not been invoked as a scientific concept so as to explain, in the scientific sense of the word, events which otherwise the sciences cannot explain. The Christian God is definitely not a 'god of the gaps'. Nor has the control of God been invoked as a theological concept so as to explain unusual events, known as miracles, which the sciences can neither explain nor deny. The God of Christian theism is not a Being Who arbitrarily breaks the laws of the universe, or occasionally irrupts into an order of nature which apart from His intervention would continue to run smoothly according to law. Neither 'God' nor 'miracle' are words belonging to the language of science, as I. T. Ramsey³⁰ has insisted. They belong to a supplementary metaphysical language, which is rendered necessary by the incompleteness or inadequacy of scientific language for the full understanding of events. They are 'personal' words, which ultimately are necessary for the understanding of events because we ourselves are persons. We cannot exhaust the meaning of any event unless we discuss it in personal terms. Thus the Christian theologian insists on discussing all events, whether they are in accordance with the normal laws of science or whether they are not, in terms of an ultimate personal activity: just as, in our analogy, there is no possibility of a conscious human act which is not in some sense a personal act. Hence if an event occurs, which falls completely within the scientific description and explanation of nature in terms of scientific laws and concepts, we must assert that the event is due to the activity of God as primary cause and to other more or less determined causal sequences, recognizable by science, as secondary causes. If an event occurs, assuming such events to be possible, which does not fall entirely within the scientific description and explanation of nature in terms of scientific laws and concepts, we still assert that the event is due to the activity of God as primary cause and to other more or less determined causal sequences, such as might be recognized by science, as secondary causes. But we should now have to assert also that just as the

direct effect of God's primary causality is different from the normal, so in consequence a secondary causal sequence ensues which, though equally determined, is different from the normal, and results in a different observable event. Such an event, no more and no less than other events the result of God's primary causality, and no more and no less the result of a secondary causal sequence, would be called a 'miracle' or classed as a super-normal event.

It is in an analogous way to this that the human mind appears to control conscious bodily activity. In order to understand more clearly on our analogy what is implied by the occurrence of miracle, presuming it to be a possibility, let us for a moment regard the control which the human mind exercises over the body at the level of nervous activity as a (relative) primary causality—relative, because of course strictly God is the primary cause of all activity, and our minds are secondary to His. Then we may say that bodily action is the final result of a causal sequence initiated by the (relative) primary causality exercised by the mind, continued through a series of electrical impulses in the central nervous system and motor nerves, until it ends in consequent muscular activity. The causal sequence from mind to muscle is determined in accordance with the normal laws of science, whatever form the bodily activity may take. Let us suppose that I am walking in the countryside, for instance. The act of walking, moving my legs alternately, is a conscious muscular activity; though having learned the trick many years ago I now do it more or less automatically. (It is certainly not an *unconscious* muscular activity in the sense that the heart-beat is unconscious.) The causes of my walking are, (1) an act of choice, which is primary, and (2) a determined causal sequence, recognizable to physiology, which is secondary. I suddenly come round a corner and a view opens up before me which fills my mind with admiration. I halt and exclaim 'How marvellous!' A completely new bodily activity has resulted, which in the realm of (relative) primary causes is due to a new act of choice by my mind. A totally different causal sequence ensues; employing different nerves and different muscles, but one which is still

recognizable to physiology and equally determined. Instead of walking, I am talking. A sufficiently thick-witted observer might assert that law has broken down: but it has done nothing of the kind. The mistake is his. He had erroneously supposed that I am capable of walking, but of nothing else. In fact reality turned out to be richer than he had believed possible. Might it not be the same in the world of nature as a whole, where God is in control? May not the external world be somewhat richer than the generalities of science would lead us to suppose?

We have succeeded in discerning what would be implied by the existence of miracle. We have mapped out a possible 'mechanism' by which events altogether different from the normal might take place. Is this the same thing as showing that the occurrence of miracle is an actual possibility? Not exactly. If our argument is valid, what we have shown is that the order of nature is such that if God wills an event different entirely from the normal, that event takes place without any breakdown of causal sequences. The order of nature is what it is, however, because God has made it so. We may say then that God has created a world in which events, whether normal or not, are responsive to His will, except in so far as He has limited His own power over His creation by creating living organisms and conscious willing persons. The question whether miracle is possible includes not only the philosophical question, Can God work miracle if He wills to do so? But also the question, Is the character of God such that He would avail Himself of a 'mechanism' such as we have discerned in order to work miracle? This second part of the question is theological. It can be answered only in the light of the knowledge of God, i.e. in the light of specifically Christian theology. We have seen already that the normal uniformity of the external world on the large scale is the condition of a rational human life and of the exercise of moral responsibility. Obviously then on theological grounds we do not anticipate the frequent occurrence of miracle. But let us suppose for the sake of argument that God never under any conceivable circumstances avails Himself of the 'mechanism' which would enable Him to work miracle. If the anthropo-

morphism may be pardoned, He keeps it up His sleeve. He could use it, but does not. In this case the uniformity of the external world on the large scale would be absolute; and we can therefore ask pertinently, How can God conceivably reveal Himself as Love? In ruling out the possibility of miracle by hypothesis, have we not also ruled out the possibility of knowing God, except in the purely philosophical sense? On our supposition we could have knowledge of God as the Ultimate metaphysical Reality, the Creator and Sustainer of all else that exists, the Source of all that is true, beautiful or morally good. Natural theology would still be a possibility; but Christian theology would not.

Unless the external world is the arena of God's activity in the fully personal sense of the word 'activity', there can be no revelation of God in Christ. In the light of the Christian revelation of God, which is accepted by faith and justified in experience, it is therefore, inconceivable that God should have created an order of nature such that He is able to control events in accordance with His own will (except in so far as He has voluntarily limited His own freedom by conferring a limited freedom on some of His creatures) and yet never avail Himself of the philosophical possibility of miracle, inherent in the order of nature, in order to declare Himself to His creatures. As I. T. Ramsey³¹ writes, 'Ultimately the defence of miracle is the metaphysical defence of a personally active God. They stand or fall together.' We have to accept the possibility of miracle, or else renounce altogether the Christian conception of God. And because we recognize the occasional occurrence of miracle to be consistent with the knowledge of God as a supra-personal Being whose character is Love, we can distinguish between miraculous events as the '*personal*' activity of God, and events in accordance with the normal large-scale uniformity of nature as the '*impersonal*' activity of God. It is the same God Who is active in either case, whether He acts personally or impersonally. His impersonal activity results in the normal regularity of nature on the large scale, and is necessary as the basis of a rational life and of moral responsibility. Through His impersonal activity, however, we can know of God only what

is included under the heading, 'Natural theology'. Through His direct personal activity, however, God reveals Himself to man; and the Christian faith stands upon the fact that we can recognize and know God in and through His personal activity. We conclude therefore by giving a definition of what we mean by miracle, and by asserting the possibility of the actual occurrence of miracle as the condition of any direct personal knowledge of God.

By miracle we mean *an event in which the normal uniformity of the external world is transcended, as a result of the personal activity of God, so that He declares, and we recognize, His redemptive Love in action.*

We have no basis either on scientific, philosophical, or theological grounds for approaching the New Testament with the definite presupposition that events which purport to be supernatural or miraculous in character are to be ruled out *prima facie*. We may expect such events to be infrequent, even in the New Testament, but we cannot legitimately rule out their possibility altogether.

THE KERYGMA

The word *κήρυγμα* means 'a public proclamation'. It is used in the New Testament for the preaching of the gospel or 'good news'. It is the proclamation, to all who will listen, of essential Christianity as it was understood in New Testament times. While, therefore, the content of the kerygma is to be found in our gospels, together with much else that is not kerygma, we must look for the public proclamation of essential Christianity in the Acts of the Apostles primarily; and in those parts of the writings of St Paul where he is recalling to his readers what he first preached among them. The greater part of our detailed knowledge of this early preaching rests therefore on the work of a single author, Luke by common consent. Consequently, the manner of composition of the speeches in Acts is not without interest in determining how uniform in content was the early proclamation of the gospel. There does not appear to be general

agreement upon this point; and we really cannot be certain whether we possess a number of Lukan compositions, belonging perhaps to the period around A.D. 75, put into the mouths of Peter and Paul; or whether Luke was working on summaries of the speeches or sermons which had been carefully preserved, so enabling him to take us back authoritatively to the period A.D. 30-50. Since, however, the theological and historic content of the sermons in Acts can be more or less completely paralleled in Paul and Mark, we can at least be certain what was considered to constitute essential Christianity by the middle of the first century. Unless we are to postulate an official stenographer on the day of Pentecost and in the weeks that followed we can hardly ask for greater certainty than this. Suffice it to say that from the sources at our disposal a consistent pattern of preaching can be discerned, which is conveniently set out by Dodd³² in his book 'The Apostolic Preaching and its Developments'. We may legitimately hold the primitiveness of this pattern, though we should not necessarily push it too far back; and we may argue from its substantial reproduction in the Apostles' Creed, which dates from the later second century, to a determination by the authorities of the early Church to maintain the purity of the gospel. This fact is some guarantee that the *content* of the kerygma may be carried back behind the middle of the first century, even if the *pattern* which we recognize took shape only gradually in the course of the first twenty years or so.

We may conveniently set down the pattern of the kerygma as follows, contenting ourselves with Peter's sermon on the day of Pentecost as textual evidence of the several points:

- (1) *In Jesus of Nazareth, Old Testament prophecy has been fulfilled.*

'This is that which hath been spoken by the prophet Joel' (quotes Joel 2²⁸⁻³²). Also, 'For David saith concerning him. . . .' (quotes Ps. 16⁸⁻¹²) 'David . . . being therefore a prophet, and knowing that God had sworn with an oath to him, that of the fruit of his loins he would set one upon his throne. . . .' (Acts 2^{16, 25, 29-31}).

(2) *Jesus did many Mighty Works, and Signs.*

'Ye men of Israel, hear these words: Jesus of Nazareth, a man approved of God unto you by mighty works and wonders and signs, which God did by him in the midst of you, even as ye yourselves know. . . .' (Acts 2²²).

(3) *He was crucified.*

'Him being delivered up by the determinate counsel and foreknowledge of God, ye by the hand of lawless men did crucify and slay.' (Acts 2²³).

(4) *He was raised from the dead on the third day.*

' . . . Whom God raised up, having loosed the pangs of death, because it was not possible that he should be holden of it.' (Acts 2²⁴).

(5) *The Resurrection is attested by witnesses.*

'This Jesus did God raise up, whereof we all are witnesses.' (Acts 2³²).

(6) *Jesus is exalted to the right hand of the Father.*

'Being therefore by the right hand of God exalted, and having received of the Father the promise of the Holy Ghost, he hath poured forth this, which ye now see and hear. . . . Let all the house of Israel therefore know assuredly, that God hath made him both Lord and Christ, this Jesus whom ye crucified.' (Acts 2^{33, 36}).

(7) *Salvation is offered in the Name of Jesus Christ.*

'Repent ye, and be baptized every one of you in the name of Jesus Christ unto remission of your sins; and ye shall receive the gift of the Holy Ghost.' (Acts 2³⁸).

The pattern of this kerygma underlies the whole body of the New Testament. It is set forth in the sermons. It is supported, and supplemented in detail, in the gospels. It is presupposed by the epistles and the Book of Revelation. This is the gospel which swept across the known world, and became embodied in the historic creeds, because it was indeed 'good news' which spoke to the condition of the downtrodden and the perplexed,

giving them something to live for, and a power to live by. It contains a hard core of supernormal occurrence, though it would be wrong to assert that this is the sole secret of its power as a gospel. The secret of its power lies rather in the fact that it is the proclamation of a divine event which is supernatural, through and through. God had spoken unmistakably through His Son. God had met the deepest need of humanity, and those men who were most conscious of their need were not slow to respond.

Now it will be granted that the immediate success of the kerygma in meeting the deepest needs of men does not necessarily imply the literal historical accuracy of all its details. The age was an uncritical one. Men were perhaps over-ready to grasp at a gospel which made supernatural claims; and certainly they felt no such difficulty in accepting the element of miracle as we feel today in a scientific age. We can be satisfied, however, that the message of salvation which it offered was in very truth the proclamation of the act of God. Our duty in a critical scientific age is to examine the kerygma, point by point, in order to discern as exactly as we can the claim which it makes; and to determine whether it is capable of bearing any interpretation other than the obvious literal sense of the words without thereby ceasing to be the gospel. We must decide how far, if at all, the individual points may be regarded satisfactorily as statements of spiritual truth in a mythological guise. We shall bear in mind throughout this discussion what we have already asserted: namely, that we have no valid ground for the definite presupposition that events which purport to be supernormal or miraculous must be ruled out *prima facie*. But since we belong to the scientific age and must at all costs be true to the knowledge of the natural order which Almighty God has seen fit to reveal in our day, we shall fall back on the literal meaning of miraculous or supernormal claims only as a last resort. We shall have no hesitation in accepting the literal sense of the kerygma as it stands if any other point of view clearly does violence to its spiritual truth. We now take the points in order:

(1) The claim that prophecy has been fulfilled in Jesus of Nazareth implies the possibility of prophetic foreknowledge in some

sense. Nobody who dispassionately sets the prophecies of the Old Testament side by side with the events which the New Testament regards as their fulfilment will assert that the correspondence is in any way exact as far as details are concerned. Prophetic foreknowledge is not in any sense therefore a writing of history in advance. It does not in any degree violate the principle of moral freedom of action as men have always experienced it. The most that can be said is that the prophets discerned intuitively that God would act in human history in the fullness of time. They were enabled to see in a somewhat shadowy form what salvation would involve; and in particular Second Isaiah was inspired to produce what might be called a blue-print of redemption from sin by the power of vicarious sacrifice. In the light of a developed doctrine of the inspiration of Holy Scripture we can see that such concepts as the Davidic King, The Shepherd of Israel, the Suffering Servant, and the Son of Man, represent partial strands of revelation given by the Holy Spirit to men as they were able to understand them; strands, that is, of a complex truth which would be drawn together in the Incarnate life of Jesus. The possibility of prophecy in this sense requires no more than that a channel of communication between the human and the divine should exist. This is in no way contradictory to modern knowledge; in fact, without it there could be no human knowledge of God. The kerygma makes the claim that God has acted supernaturally, both in the history of prophecy and in the fact of Christ, and that the two acts are linked as promise and fulfilment. But there is no question of the use of mythological language, and no question of scientific presuppositions. No serious difficulty arises therefore in accepting the first point of the kerygma.

(2) The claim that Jesus did many mighty works and signs asserts quite clearly, if the literal sense be accepted, that the normal order of nature is transcended. The 'mighty works and wonders and signs, which God did by him in the midst of you' are to be understood to be the miracles of healing etc., recorded in the synoptic gospels, the signs whose theological significance was subsequently to be expounded by the fourth evangelist. If the kerygma as we have it is strictly primitive, Peter's audience

would necessarily know something of the events referred to, and would be in a position to know whether or not they could legitimately be described as 'mighty works and wonders and signs'. While still reserving judgement on the question whether the normal order of nature was in fact transcended, we need have no hesitation in accepting the view that both Peter and his hearers had been sufficiently impressed by what Jesus had done to refer to His acts in such language as this. Some very wonderful things had happened, and they knew it. To speak, as the gospels do, of casting out devils is doubtless to use mythological language. But to accept that something very remarkable had indeed happened is by no means to acquiesce in primitive myth. What the events were to which Peter refers we cannot yet say with certainty; but they cannot reasonably be dismissed as either fictitious or mythical.

(3) The Crucifixion itself, regarded simply as an event, is indisputably historical. The words used by Peter in the various sermons attributed to him in Acts nowhere go beyond the statement of the plain historical fact, and the share in the responsibility for it which falls on the Jerusalem crowd. No attempt at interpretation is made in the stating of this third point of the kerygma except by Paul in writing to the Corinthian Church—otherwise reference to the redemptive value of the Crucifixion is deferred to point (7). Paul, however, inserts the words 'for our sins'³⁸ in speaking of the Crucifixion; and of course in numerous contexts uses language which implies an atonement wrought by God through the death of Jesus. The primitive kerygma is so far in fact from attempting any theory of the atonement, that we need make no attempt here to meet Bultmann's criticisms of Christian theology on this score. The references to the foreknowledge of God need cause no more difficulty than the fulfilment of prophecy in general, which has been dealt with already.

(4) The central section of the kerygma deals with the Resurrection of Jesus. Here, more obviously even than in the mention of miracles and signs, the assertion is made that the normal order of nature is transcended. Nor is this all, for the claim is in fact more striking than appears at first sight; and the original

Jewish audience, not to mention the preacher himself, could not possibly have missed the essential point. It was not merely that something had happened which was previously unknown; not merely that a man had been raised from the dead; not merely that the moral achievement of a great prophet had been vindicated. The Jesus whose Resurrection was proclaimed had been hanged on the Cross, the instrument of a shameful death. He who had died the death of a sinner, 'having become a curse for us',³⁴ had been raised, and vindicated. We may suppose both the preacher and his hearers to be uncritical and even credulous. We might suppose that they would have had less difficulty in believing that Jesus had been raised from the dead, if Jesus had died a normal death in sickness. But for a Jew to claim, without real evidence, that Jesus rose, bearing in mind the Death He had died, is in itself almost inconceivable: for it implies a complete reversal of his normal theological presuppositions. Here then we are faced by a peculiarly subtle difficulty if we seek to account for the preaching of the Resurrection by pointing to the uncritical outlook of the disciples and their converts. The difficulty is by no means disposed of by the suggestion that the Resurrection is a mythological statement of a spiritual truth to be accepted by faith: for we still have to answer the question, How can the disciples have come to such a radical revision of their theological conceptions apart from the occurrence of some objective event which caused them to do so?

(5) At this point it is fairly obvious that the preacher of the kerygma is seeking to answer our natural question—which was also the natural question of his original audience: What evidence have you? He asserts that he has direct evidence; that he and his fellow apostles are witnesses; and we learn that in filling the vacant place in the Twelve,³⁵ the ability to witness to the truth of the Resurrection was one of the qualifications insisted upon. The charge that the apostles were totally uncritical is hard to uphold. There has been no shortage of ingenious but unconvincing suggestions to account for their supposed misunderstanding. However, the point made above under (4) is valid here also. We cannot dispose of the apostolic witness with a wave of the

hand. And in speaking of witness there is no question of mythology.

(6) In referring to the exaltation of Jesus to the right hand of the Father, the kerygma seems to be attempting interpretation for the first time. Up to this point, ostensibly at least, it has confined its attention to verifiable facts—verifiable, that is, at the time the apostles spoke. The interpretation offered now continues the line of thought, quite revolutionary from the theological point of view, which was begun in point (4). The Jesus who had died a shameful death had not only been raised. More than this, He had been 'exalted'. Setting aside the primitiveness of the Christology, though this is strong internal evidence of authenticity, it is the Crucified Who has 'become' the Christ. 'God hath made him both Lord and Christ, this Jesus whom ye crucified.' From this fact (from this interpretation, if we prefer it) flows the power which is redemptive. Having embarked upon what is necessarily interpretation the apostle can do no other than employ language in a symbolic sense. While points (1) to (5) of the kerygma refer to events which we can reasonably take to be events on the plane of history, now for the first time we have the attempt to express a reality beyond history. The implied suggestions that heaven is a place and that God has a right hand, together with other New Testament language about thrones, can indeed be treated as a part of the mythology which was current in those days though the word 'symbol' is more adequate than the word 'myth'. We can in fact admit that the language is mythological or symbolic, without in any way claiming to better it for ordinary religious purposes. Here the use of myth or symbolism is practically unavoidable and is not to be criticized. Nobody at the present time is concerned to speak of the exaltation of Christ in other than symbolic terms.

(7) If points (2) and (4) involve the claim that the normal order of nature was transcended so too does this final point of the kerygma without which the rest would lead nowhere. The offer of salvation in the Name of Jesus Christ is the claim that the order of nature in its moral or spiritual aspect is transcended.

What St Paul calls the 'law of sin'³⁶ has been done away. We need not accept the Pauline psychology in order to recognize the force of the claim. We need not see the moral struggles of mankind as a warfare between his spiritual and his bodily parts. We can state the claim quite differently, if we choose to do so. The plain fact of human experience is that without Christ, sin reigns supreme, both in the life of the individual and in the life of society. In the life of the individual—because the habit of sin constantly weakens the power to resist temptation and to do what is known to be right. In society—because wrong-doing is so easily copied, and evil is repaid by evil. Without Christ the law of sin is of almost universal application among men. By the power of Christ, Who nailed it to the Cross and triumphed over it,³⁷ men have been set free from the law of sin in their own lives, and in the new society which is being created by God's grace. Even if we were to insist on seeing Christian salvation in terms only of the psychological nature of man, the kerygma includes the claim that the normal laws of psychology are transcended, and man is set free to do the will of God. The claim is fully substantiated by Christian experience. By the fact of Christ's Death and Resurrection (and we must reserve judgement for the present on the objective facts, whatever they were, on which the belief in the Resurrection is based) a new power is released, which transforms human nature from within. Whatever that power may be, it has filled the lives of countless men and women with love for their fellow beings; and has inspired and enabled countless lives of self-sacrifice in which Christ's love has shone again to the glory of God. The whole course of history has been changed by the fact of Christ, His Death, and His Resurrection. At its own level, this is every bit as much a refutation of the scientific presuppositions of the modern world as are the miracles and the Resurrection regarded simply as events of history.

The traditional theology of the Catholic Church sought to express the facts of the kerygma in dogmatic form. To do so adequately, occupied some of the most acute minds of the patristic period, and taxed the linguistic and philosophical resources of civilization to the utmost. Nothing less than the doctrine of the

Incarnation, with its corollary in the doctrine of the Virgin Birth, sufficed to express and to include the wholeness of the historic fact of Jesus Christ as it was apprehended by the primitive Church. A coherent theological account of the new facts of revelation as they were understood by the early Church was gradually seen to involve the taking up of manhood into God. Taken together, Catholic theology and the kerygma on which it is based assert that the life of Jesus of Nazareth is *the* event of supreme importance, the key to the whole of human history, the turning point of the historical process, the beginning of a new creation. The transcendence of nature is asserted at every single point. If this total claim cannot be upheld in the face of modern criticism then the preaching is vain, and our faith also is vain.³⁸ Either the kerygma and its embodiment in the Creeds is the supreme truth of revelation, or it is meaningless. How then is the kerygma to be understood?

Let us now try to see this central question of revealed religion in its true perspective. We have found the point of view that the kerygma embodies spiritual truth in a wholly mythological framework entirely unsatisfactory as an attempt to solve the problem of belief in a scientific age. We are quite prepared to concede that the language of myth or symbol has been employed in speaking of the exaltation of Christ, and indeed that here it is almost unavoidable. As regards the claims which imply occurrences of a supernatural character, the miracles and the Resurrection, we are forced to accept the view that objective occurrences of some kind form the basis of the apostolic proclamation. In no other way can we account for three salient facts: (1) the fact that the people of Jerusalem are clearly aware of the mighty works and signs which are attributed to Jesus; (2) that the Resurrection and exaltation of a man who died the death of a criminal, however unjustly, is unthinkable to a person of Peter's religious background, unless some objective occurrence has forced him and his fellow apostles to reject their previous theological presuppositions; and (3) that the apostles' insistence on witnesses is quite unintelligible unless there was something to witness. Now granted that the apostolic proclamation is based on objective occurrences, it remains for us,

to enquire what these may have been; and, if no other possibility is open to us, to accept their claims substantially as they stand, for we have already shown that the scientific presuppositions of the modern reader cannot be maintained absolutely in the face of sufficiently good historical evidence of supernatural occurrences. Between the realms of myth and accurate factual reporting lies the possibility of a partial overlaying of authentic objective event by legendary elements. It is precisely this possibility which renders the historical estimation of the New Testament evidence a problem of such delicacy. One cannot help observing that certain parts of the Old Testament abound in accounts of the miraculous, and that in some cases these show a superficial resemblance to the mighty acts of Jesus. For instance both Elijah³⁹ and Elisha⁴⁰ are credited with the raising of the dead; and it can hardly be denied that the reading of these stories in the course of the daily lections for Easter week fails to do full justice to the uniqueness of our Lord's Resurrection. Elisha, moreover, is credited with a miraculous feeding⁴¹ of a hundred men, which is remotely similar to our Lord's feeding of the five thousand. The turning of water into wine at Cana can be rather roughly paralleled by the Old Testament miracle of the widow's oil.⁴² Clearly, we have here instances of remarkable acts of remote antiquity, whose original objective nature is forever lost in legendary accretions. In what way, if any, do the corresponding miracles of our Lord fall into a different category? There is one difference of great significance. On any possible view of the dates of composition of the various books of the Old and New Testaments, the time which elapsed between the event and its recording in writing was incomparably greater in the case of the Old Testament miracles than in the case of those of the New Testament. Legends require considerable time for their formation. That time interval elapsed in the case of the miracles of Elijah and Elisha. By the time that the apocryphal gospels were being produced, a suitable interval had elapsed also since the miracles of our Lord. We must admit the possibility of some legendary elements, presumably, even within the canonical gospels; but the time interval between event and recording

is too short to allow of large-scale corruption of the apostolic tradition by legendary accretions.

Within the New Testament itself, therefore, we can admit the existence of a tendency to legendary composition, at present of unknown extent. We can distinguish however in evidential value between the mere reference by Peter on the day of Pentecost to the mighty works (whose nature remains unspecified) and the accounts given in the gospels themselves (to which we must go for details of the mighty works). We can admit that the one is valid evidence of the occurrence of objective events of some kind which can be called 'mighty works'; while the gospels may contain partially legendary accounts of these same events. In this case, we should not press all the details of the miracle stories as narrated in the gospels, while still maintaining the occurrence of some objective events of a supernormal character. In the same way the apostolic witness to the fact of the Resurrection in the early chapters of Acts and in the epistles (especially 1 Corinthians) may be judged capable of carrying a greater weight of evidence than the more detailed accounts provided by the gospels. But while we may be justified in reading some of the miraculous sections of the gospels with a certain critical reserve, because we wish to allow for the possibility of legendary elements which may have crept in during the course of perhaps two generations, there is one question which we can put to the gospels as a whole which appears to by-pass the possibility of legendary accretions. We can ask what was our Lord's own attitude to the mighty works attributed to Him, and to His own Resurrection? We can answer this question by a closer examination of certain passages and sayings; which, because they are not in fact accounts of the miraculous, may be held to be relatively free from legendary accretion. The central fact on which form criticism is based, namely oral transmission of isolated fragments, appears to justify this approach. For we are at liberty to assume, if we will, that in transmitting the story of a miracle the early Christians may have heightened the miraculous element, whereas in transmitting other fragments whose *sitz im leben* is different, and which are preserved for different theological

reasons, they have done no such thing. We proceed then to the examination of this question.

CHRIST'S ATTITUDE TO THE SUPERNORMAL

(a) *The Miracles*

In a number of contexts, preserved apparently for a variety of reasons, but in no case as it seems with the express object of narrating a miracle story, we can discern something of our Lord's attitude to His mighty works. Notable among these passages are (i) the Temptation narrative, (ii) the Synagogue Sermon in Nazareth, (iii) the reply to the disciples of John Baptist, and (iv) the record of the Beelzebub controversy.

(i) The Temptation narrative,⁴³ recorded in approximately similar forms in the first and the third gospels, either represents a tradition as given by our Lord Himself, or alternatively must be regarded as the product of an extremely profound thinker who has pondered deeply on our Lord's consciousness of the messianic vocation. In the absence of any known apostolic writer of sufficient spirituality we must accept the former alternative. At some time during His ministry Jesus presumably confided in His disciples something of the spiritual struggle which preceded His public work; and, perhaps for the light which it sheds on the problem of temptation in general, this was preserved by the Christian community. The ground of the three recorded temptations was Jesus' consciousness of divine Sonship given already at His baptism by John. Two of the temptations indeed open with the words, 'If thou art the Son of God. . . .' In Jewish thought, sonship implied obedience to a father. It was Jesus' obedience which was being tested: as in fact all temptation tests obedience to God. The first temptation runs, 'If thou art the Son of God, command that these stones become bread'. The important word to notice is the word 'command'. The word of God does not return to Him void:⁴⁴ it accomplishes His will. In the light of the unique relationship to the Father of which Jesus was conscious, this must be seen as a temptation to make use of supernatural power for material ends. Various

to be interpreted messianically, even though the Hebrew contains no reference to actual healing of the sick; and in the exposition which follows it is quite clear that Jesus made a messianic claim: 'Today hath this scripture been fulfilled in your ears.' However, we cannot escape the reference to works of healing altogether in this incident, even though they are not mentioned in the Hebrew, for at verse 23 we read, 'And he said unto them, Doubtless ye will say unto me this parable, Physician, heal thyself: Whatsoever we have heard done at Capernaum, do also here in thine own country.' We can hardly doubt that the proverb 'Physician, heal thyself', is a true recollection of our Lord's words. Once more then we have the association in our Lord's mind of the messianic office and works of supernormal power. We may notice in passing that Mark consistently associates healing with the work of the Messiah. Though he does not make the point explicitly, it is none the less implied by the words of recognition which he records when a miracle of healing has been performed.⁴⁸ We are concerned primarily, however, with evidence of our Lord's attitude to His mighty works. We see this in the proverb, 'Physician, heal thyself'; and quite possibly, though not certainly, in the citation from Isaiah. The mighty works, whatever they were objectively, were seen by their author to be part of His messianic work. The claim to be the Messiah and to fulfil messianic prophecy, unsupported by the mighty works which the people of Nazareth hoped to witness, was the cause of their attempt to cast Him over 'the brow of the hill whereon their city was built'. The whole incident illustrates our Lord's saying, 'No prophet is acceptable in his own country', and may well have been preserved for this reason. The other evangelists give the saying in its more familiar form, though otherwise in a similar context: namely, the inability of Jesus to do many mighty works at Nazareth.

(iii) The incident in which John Baptist⁴⁹ sent disciples to Jesus is interesting in that presumably it was preserved primarily for the witness which each gives to the work of the other. The synoptic tradition does not record anything equivalent to the Baptist's testimony, 'Behold the Lamb of God . . .'⁵⁰ which can

be regarded as completing the baptismal scene at Jordan. Instead, we have a picture of John imprisoned by Herod, and beginning to doubt whether Jesus is indeed the Christ. Accordingly, he sends two disciples to Jesus with the direct question, 'Art thou he that cometh, or look we for another?' A direct question to Jesus seldom, if ever, received a direct answer—Jesus preferred to leave people to draw their own conclusions from the evidence before them. Here then, He carried on with what He was doing; and then turned to the messengers with the words: 'Go your way and tell John the things which ye do hear and see, the blind receive their sight, the lame walk, the lepers are cleansed, and the deaf hear, and the dead are raised up,⁵¹ and the poor have good tidings preached to them. And blessed is he whosoever shall find none occasion of stumbling in me.' The reply clearly contains reminiscences of passages from Second Isaiah,⁵² which are definitely messianic in their application. In this context, which appears to be of an entirely different character from the synagogue scene in Nazareth, the references to healing, restoring of sight, and raising of the dead can hardly be understood only allegorically: otherwise the facts mentioned could have little evidential value for John's disciples. We must conclude that mighty works of healing were actually performed in their presence. Of the Lukan version Easton⁵³ remarks: 'The authenticity of this section is hardly to be questioned. A controversialist of the apostolic age would have adduced evidence of a very different character.' He goes on to observe that 'allegory is not to be excluded entirely, but it certainly does not exhaust the meaning of the passage'. The mighty works mentioned in this passage are exclusively works of mercy, and not obvious demonstrations of power performed for the sake of demonstration. While it is not necessary to suppose that all these mighty works were in fact performed during the time that John's disciples waited for their answer, it is extremely difficult to avoid the conclusion that actual acts of healing, some of them very remarkable indeed, took place under their eyes. Here then we have evidence from a most unexpected quarter for the authenticity of miraculous healings; evidence which, in view of the manner of transmission

of the tradition, has an altogether greater weight than any full account of a miraculous act could possibly have. And moreover, the evidence of this Q passage again sets our Lord's mighty works in the context of His messianic consciousness. To those who have seen the works with their own eyes, or who hear of them at first hand, He can say, 'Blessed is he, whosoever shall find none occasion of stumbling in me.'

(iv) The intentional misunderstanding of Christ's works of mercy, which resulted in the Beelzebub controversy, is reported in all the synoptic gospels,⁵⁴ in each case in the same context. Each gospel records the parable of the strong man armed; and each gives our Lord's 'proof' that Satan cannot cast out Satan. The difficulty and the valuable insight, both of which are given by this same incident, arise from the short Q passage which Matthew and Luke each place in this Markan context. 'If I by Beelzebub cast out devils, by whom do your sons cast them out? therefore shall they be your judges. But if I by the finger (Matt. "spirit") of God cast out devils, then is the Kingdom of God come upon you.' The words seem at first sight to imply a lack of uniqueness in Jesus' mighty works; apparently others also worked cures which could be regarded as a casting out of demons. Perhaps we can get over this difficulty by suggesting that the particular work of healing known as 'casting out devils', in that it does not involve anything organic, is a less remarkable achievement than other mighty works; and by recognizing that, while such cures as performed by Jesus were lasting in their effect, outwardly similar cures performed by common faith-healers or exorcists were not permanent. This observation, if it were sound, might give additional point to the appended parable⁵⁵ of the return of the demon with seven others 'more evil than himself' after his house had been swept and garnished. If this be the correct understanding of these two verses, then Christ's own cures stand out as so much superior to those of the exorcists that they must be recognized as the signs of a far greater spiritual power. 'If I by the *finger of God* cast out devils, then is the Kingdom of God come upon you.' Once more we note the same association of mighty works with the messianic office as Christ conceived it.

Let us then gather together what we have learned from these four strands of evidence. The mighty works are invariably set in a messianic context by our Lord. To His mind they are an integral part of His messianic work. They indicate the proximate coming, or realized presence, of the Kingdom, and they mark Him out as the King. They are 'signs' in the sense that the fourth gospel uses the term. But in no sense does Christ perform His mighty works in order to draw attention to Himself, or to compel support. Indeed, He frequently bids those whom He has healed not to advertise the fact; or in the mythological language used by the gospels, 'he suffered not the devils to speak'.⁵⁶ The importance of the mighty works lay partly in the fact that they were works of mercy, but partly also in that they point to the Christ. Thus, however much their existence may constitute a problem for us today, they had an undoubted evidential value at the time of our Lord's ministry, though one which He was loth to press. In fact, we have discerned Jesus' view of His own mighty works and also gained some understanding of their nature as objective occurrences, by examining mere traces of evidence which are obviously authentic, for the reason that there is no conceivable motive for legendary accretion or for heightening their miraculous content. In a critical age, the value of such evidence is altogether greater than any number of straightforward miracle stories, each of which may be suspect in itself, and which are no more convincing by the dozen than singly. We have learned, moreover, that Jesus' mighty works were objective occurrences. They could convince an outside observer, or they could drive an outside observer to deliberate misrepresentation. John's disciples and our Lord's own humble followers became convinced that He was indeed the One Who should come. Certain of the Pharisees, who were guilty of the blasphemy against the Holy Spirit, convinced themselves that He worked by an evil power: but none the less they recognized that He worked. We are justified then in drawing two conclusions quite definitely: (1) The mighty works were events of a kind outside the normal experience of everyday life, and outside the normal order of nature as it was then understood. We are justified in regarding

the mighty works of Jesus as transcending the normal order of nature as we know it also, for clearly they went beyond anything which can be explained on medical or psychological grounds. (2) Jesus Himself regarded His mighty works as part of His messianic activity and as clear indications of direct personal divine action. We must do the same, unless we are prepared to say that He was mistaken in His understanding of His own work.

(b) *The Resurrection*

The second half of each gospel is marked by frequent reference to our Lord's impending Passion, Death and Resurrection. Taking the synoptic gospels exactly as they stand we should conclude that, following upon His recognition by Peter at Caesarea Philippi, our Lord took pains to deepen His disciples' understanding of the word 'Christ' and to bring them to see that His divine vocation included suffering and rejection at the hands of wicked men. Many of the references to His Passion, Death, and Resurrection are explicit, and are given without appreciable variation by all the synoptists. Thus, we have:

- (i) 'And he began to teach them, that the Son of man must suffer many things, and be rejected by the elders, and the chief priests, and the scribes, and be killed, and after three days rise again.'⁵⁷
- (ii) 'For he taught his disciples, and said unto them, The Son of man is delivered up into the hands of men, and they shall kill him; and when he is killed, after three days he shall rise again.'⁵⁸
- (iii) 'Behold we go up to Jerusalem; and the Son of man shall be delivered unto the chief priests and the scribes; and they shall condemn him to death, and shall deliver him unto the Gentiles; and they shall mock him, and shall spit upon him, and shall scourge him, and shall kill him; and after three days he shall rise again.'⁵⁹
- (iv) 'For verily the Son of man came not to be ministered unto, but to minister, and to give his life a ransom for many.'⁶⁰

In an age in which the New Testament is approached critically, and which displays a strong tendency to suspect any claim to

foretell the future, scholars have sometimes been inclined to dismiss these explicit references to our Lord's Passion, Death and Resurrection as 'prophecies after the event'. Our Lord's sayings do indeed go far beyond expressing a general premonition of death, and appear to forecast the actual course of events with considerable accuracy. This is most noticeable in (iii) where the details of His sufferings tally very closely indeed with the actual events. Vincent Taylor,⁶¹ however, has argued that if these prophecies as they stand in Mark are the products of early Christian reflection then it is remarkable that half a generation later they are reproduced by Matthew and Luke 'with less important alterations than might be expected,' and that 'most of the changes are omissions'. Nevertheless, if the explicit references stood by themselves as the only evidence of our Lord's prevision, it would be difficult to be entirely confident of their authenticity. The position in fact would be somewhat analogous to our having no evidence for our Lord's mighty works other than that provided by the miracle stories themselves. It becomes profitable therefore to enquire further into our Lord's own theological interpretation of His Death and Resurrection, and to consider such other references which He made to these events; which, being less direct, are less likely to be ascribed to early Christian piety, or to manipulation of the narrative. This task has been carried out exhaustively by Vincent Taylor in his book 'Jesus and His Sacrifice'.

The fourth saying quoted above, while giving no detail of our Lord's Death, interprets it as the means of atonement. 'There can be little doubt that the ideas which lie behind the saying are those of Isaiah 53.'⁶² Vincent Taylor proceeds to examine the sacrificial language attributed to Jesus expressing the significance of His Death. He concludes that the saying is authentic, being 'much too discreet' to be ascribed to the community, and 'having just that air of mystery, and the note of provocativeness'⁶³ which are constantly found in Jesus' words. Clearly the linking of the sacrificial character of the Lord's Death with the ideas of Isaiah 53 for the first time requires deep theological insight. It is more reasonable to suppose that Jesus Himself was responsible for the

interpretation than that the community subsequently realized what our Lord had not been aware of. Among the implicit references to His Passion, which display an understanding of its meaning no less than a prevision of its occurrence, we have also the following instances:

- (v) The Parable of the Wicked Husbandmen.⁶⁴ '... He had yet one, a beloved son: he sent him last unto them, saying, They will reverence my son. But those husbandmen said among themselves, This is the heir; come, let us kill him. ...'
- (vi) The Anointing at Bethany.⁶⁵ '... Let her alone ... she hath wrought a good work on me ... she hath done what she could: she hath anointed my body aforehand for the burying.'
- (vii) The Last Supper.⁶⁶ 'This is my blood of the covenant which is shed for many.'

The parable of the wicked husbandmen is unusual among our Lord's utterances in that it is definitely allegorical. As allegory, however, it is in line with Isaiah 5, to which it bears close resemblance. The reference to our Lord's Death is entirely implicit; yet once the community had learned the significance of that Death and of the Resurrection it would have been a simple matter indeed to expand the parable to make the reference more explicit. This has not been done: a sure indication of the authenticity of the parable as it stands. The story of the anointing at Bethany no doubt circulated as a self-contained fragment. Why does it come to be inserted within the Passion narrative? Unless the interpretation attributed to Jesus in the words, 'she hath anointed my body aforehand for the burying', be authentic, the connection with the Passion narrative is by no means obvious. The saying at the Last Supper about the 'blood of the covenant' which avails 'for many', again provides a link with the theological ideas of Isaiah 53. Once more, especially in this context, we cannot fail to ascribe the original insight to Jesus Himself. As these and other utterances of our Lord are studied carefully, it becomes increasingly clear that Jesus not only foresaw His Passion and Death, but also that He consistently interpreted it Himself in the light of the teaching of the Suffering Servant.

Can we claim with equal assurance, for this is the important

point in our argument, that Jesus anticipated His Resurrection? The explicit references (i) and (iii) certainly include mention of the Resurrection. What evidence have we from our Lord's more indirect sayings to support these explicit predictions? First of all it should be noticed that in accepting the theological ideas of Isaiah 53 our Lord implicitly takes over also the expectation that the Righteous Servant will be vindicated by God. Coming, as it does, from a period before belief in the final resurrection of the just became at all general among the Jews, the last verse of the prophecy is striking: 'Therefore will I divide him a portion with the great, and he shall divide the spoil with the strong.'⁶⁷ As North⁶⁸ remarks, 'the resurrection of the Servant was something which the Prophet must have had difficulty in apprehending clearly'. Nevertheless, it is but a step from the language of Second Isaiah to that of Jesus, and clearly our Lord read into prophecy the expectation of His vindication by the Father. Moreover, two of the passages already noticed, which refer implicitly to our Lord's Passion and Death, conclude with words which at the very least show that Jesus faced His sufferings with unclouded confidence. Thus the parable of the wicked husbandmen finishes with a citation from Psalm 118, which clearly implies a reversal of the fate of the beloved son:

(va) 'The stone which the builders rejected, the same was made the head of the corner: this is from the Lord, and it is marvellous in our eyes.'

Without doubt this Old Testament quotation became a favourite one in the Christian community. This does not mean, however, that the community was necessarily the first to use it as a proof-text of the exaltation of Christ. The use made of it in Acts 4¹¹ and in 1 Peter 2⁴⁻⁸ is altogether more direct and pointed. The very restraint of this reference to Psalm 118 in the parable of the wicked husbandmen is indicative that Jesus so used the quotation. As before we shall not be surprised to find the original mind in our Lord Himself rather than in one of His followers. So far as the meaning of the citation goes we are justified in concluding that while Jesus saw the death of the beloved Son in the parable as an allegory of His own Death, He also regarded Holy Scripture

as pointing to a reversal of death and the vindication and exaltation of the One who should die. Clearly too, He expected His hearers to understand the Scriptures in the same way, for He introduces the quotation with the question: 'Have ye not read even this Scripture. . . ?' Thus also, our Lord's words at the Last Supper are full of confidence. Immediately after His mention of the Cup as 'my blood of the new covenant', He goes on:

(viia) 'Verily I say unto you, I will drink no more of the fruit of the vine, until that day when I drink it new in the Kingdom of God.'

Certainly the words are puzzling; though they are entirely Hebraic in tone. As we have seen, Jesus viewed His sufferings in the light of the prophecy of the Servant. His Death was to be the ultimate obedience to Absolute Goodness, the ultimate messianic act which should bring in the Kingdom with power.⁶⁹ Through the partaking of this Cup He will initiate His own into the Kingdom. 'In that Kingdom He will drink new wine with them, and eat with them of the eternally fulfilled passover of a deliverance from worse than Egyptian bondage'⁷⁰. Clearly our Lord's words indicate more even than confidence in the facing of death. They are evidence of a certainty that the culmination of His whole messianic work lies on the far side of His Passion and Death. His Death, as He alone understood it when He went out to meet it, was the event by which He would 'enter into His glory'.⁷¹ Luke places the unfolding of the divine necessity after the Resurrection, but there remains little doubt that Jesus understood it, and understood it fully, before He suffered. With all the usual reticence in doing so on a critical question, perhaps we may conclude by quoting the saying from the fourth gospel: (viii) 'Therefore doth my Father love me, because I lay down my life, that I may take it again.'⁷²

The fourth gospel, simply because it is born of a lifetime of meditation on the events of our Lord's life, confirms and amplifies the deepest understanding of His mind which can be culled from the synoptics.

The point at issue in this section has been our Lord's own attitude in the days of His flesh to His Resurrection from the

dead. It has not been easy to reach certainty on the question, for two reasons: First, because it is so natural in a critical age to assert that His explicit predictions both of His Death and of His Resurrection as they stand in our written gospels are prophecies after the event. It is natural, and probably right, that we should raise the question whether the Christian community during the oral period read back into its reminiscences of our Lord's life understandings which in reality were the result of later reflection. Second, because it is abundantly clear that the disciples did not expect the Resurrection of Jesus. Therefore, it is not altogether obvious that they should have remembered with accuracy those sayings in which He explicitly predicted that He would rise from the dead. However, by concentrating our attention on sayings in which the reference to the rising from the dead is not directly obvious, we can confidently penetrate what may be called the barrier of their obtuseness; and moreover we can satisfy ourselves that the explicit references to the Resurrection are authentic, and have not been tampered with in an effort to make them more obviously convincing. The very restraint of some of the sayings attributed to our Lord is the proof of their authenticity. The insight which they give is evidence of our Lord's own masterly originality of understanding. In this way we have been able to satisfy ourselves of two things:

(1) Jesus was absolutely confident of His vindication by the Father, if not specifically of His Resurrection. Indeed His attitude to His Passion would be hardly intelligible without this confidence of vindication. (2) Jesus regarded His Passion, Death, and Vindication as the essential messianic act by which the Kingdom of God must come with power. It is inconceivable that He should consistently interpret His messianic task in terms of the Suffering Servant, and call on men to accept the *gospel* of the Kingdom, unless He believed His work was to end in a triumph which would indeed be 'good tidings'.

CRITICAL CONCLUSIONS

The crisis of belief through which the scientific age is passing must

now be faced, and some answer must be attempted in the light of our discussion so far. The modern approach to New Testament problems began, as we have seen, with a radical questioning of the supernatural and supranatural elements in the Christian tradition. For men who had drunk deeply of the springs of the new scientific knowledge it seemed hardly credible that any of the events in the life of Jesus of Nazareth should have been of a wholly different kind from our common experience of the natural order. The deism of the eighteenth century had prepared men's minds for a widespread rejection in the nineteenth century of the idea that in Jesus of Nazareth the Eternal God impinged directly on the historical process of this world. Consequently the history of New Testament criticism is largely the history of the reactions of biblical scholars to the claim that nature is absolutely uniform. While some scholars approached the gospels with a definite pseudo-scientific presupposition, and attempted to salve what they could of traditional Christianity in a form which should be acceptable to modern scientific man; others have tended to shelve the issues raised by the sciences, and to retreat into a realm of theological study which is concerned solely with the interpretation of the religious ideas of the New Testament. Undoubtedly this latter school has been the more productive, and of greater value for the Christian religion in its total impact on the life of men. Modern man has been challenged again by the freshness of the original Gospel. He is being recalled to a lively faith, even though the tension between the questioning mind and the believing person has remained largely unresolved. The attempt to resolve this tension by the method of demythologization has proved to do less than justice to the New Testament, regarded as a deposit of historical testimony. In its claim to present eternal truth in terms of a modern philosophical system, rather than in what is presumed to be a mythological guise, it has failed to satisfy the Christian conscience. Its real value lies mainly in the fact that it forces us to examine afresh the scientific presuppositions which so far have dogged the progress of biblical criticism. We have therefore attempted to examine these presuppositions dispassionately in the light of a more balanced

philosophy of nature. We have found that the scientific atmosphere of the present day is by no means necessarily opposed to the fundamental tenets of the Christian religion: indeed, Christian insights are essential to any full understanding of the order of nature. We have been led accordingly to reject as false the earlier scientific presupposition of the *absolute* uniformity of natural processes.

Our study of the phenomena of the external world at the fundamental level has led us to recognize the possibility of a distinct personal activity of God in appropriate circumstances, which transcends the normal uniformity imposed upon the created order. We have to ask, therefore, whether this newer insight enables us to accept any of the accounts of supernormal events with which the New Testament abounds. If it enables us to accept the main facts of the kerygma substantially as they stand, then no radical assertion of the use of myth by the apostles or by their immediate successors is either necessary or justified. The method of demythologization is a last ditch for the defence of the spiritual truth of the gospel against what proves to be a misunderstanding of the order of nature. It is as unnecessary as it is out of date.

We have seen that the various points made by the Christian kerygma add up to the assertion that the life of Jesus of Nazareth is *the* event of supreme importance in the whole historical process; that He is the key to the understanding of every single aspect of human life; that His Death, Resurrection and Exaltation mark the turning point of the historical process, and set free a new power which transforms the lives of men. If the claim which the apostles constantly made in their preaching is true, then in the life of Jesus of Nazareth nature has been transcended in all its aspects; God has acted personally and decisively in the world of space and time; and the 'new creation' has begun. The apostolic preaching involves the claim that the life of Jesus is shot through and through with the supernatural. If we accept these claims it is because no other interpretation can be consistently given to the facts which are at our disposal.

The historical facts, in so far as we can know them with

certainty, have been arrived at by the critical examination of our Lord's attitude to His own work. In this way we have been able to go behind the direct testimony of the evangelists in which they describe the miracles or record the Resurrection as objective events. Unless the gospels are to be dismissed as exceedingly ingenious and self-consistent fabrications we can claim with scientific certainty that Jesus Himself regarded His mighty works (whatever they were) as part of His messianic activity and as clear indications of direct personal divine action. It is clear beyond question that He regarded these mighty works as transcending the normal order of nature. It is also certain beyond a shadow of doubt that when He went to His Cross Jesus was completely confident of His vindication by the Father. His theological understanding of His own mission was such that He did not think of His approaching Death as a calamity which must be endured with patience, but rather as the triumphant culmination of a life already completely dedicated to the Father. His life was an offering of perfect love and obedience; His death the essential messianic act through which He would enter into His glory, and the eschatological event through which the Kingdom of God would come with power. This much is proved by the critical examination of the gospels, and in particular by the examination of those passages which, so far from being apostolic interpretations or inventions, are the very points that Jesus' own immediate followers consistently failed at the time either to understand or to appreciate.

It follows that we cannot possibly dismiss the supernatural element in the gospels, and the supernatural claims made on His behalf, without thereby asserting that Jesus was ultimately mistaken about His own work and His own significance—indeed, not simply mistaken, but disastrously and blasphemously in error at the very centre of His theological understanding of His mission. Everything hinges, therefore, on our estimate of the importance and Person of Jesus in the whole march of history; which in its turn depends upon our own experience of the living Christ in the life and worship of the Church. If we have any personal knowledge of Christ by faith; if we have any ex-

perience, however rudimentary, of the transformation of human life by His power; we cannot logically deny the total supernatural claim embodied in the Christian kerygma. The created order of nature is the arena of God's activity in general. We admit the possibility of the distinct personal activity of God in appropriate circumstances. It follows that the life of Jesus of Nazareth must be recognized as the arena of this special, direct, personal and redemptive activity of God within the created order. The conclusion therefore of our reading of modern science and of the gospels in the light of Christian experience is that we must accord some place to the occurrence of the supernormal in the life of our Lord.

To reach this conclusion is still to leave open the question how far particular narratives relating to supernormal occurrences are plainly factual; how far they may have been influenced by the faith of the early Christians; and how far they may be expressed in symbolic terms. We must be careful to draw a clear distinction between the claim that *some* events of a supernormal character took place in the life of Jesus, and the claim that *all* the supernormal occurrences of the gospels as they stand are plain historical fact. The former claim can be substantiated on critical grounds to the satisfaction of anyone with any personal experience whatever of the power of Christ. The latter claim may indeed be made, and may not be very far of the mark, but it can hardly be upheld on *critical* grounds. At present we are claiming only that in the life of Jesus of Nazareth we see the direct personal activity of God, and that some events of a supernormal character undoubtedly took place whereby the normal order of nature was transcended. A genuine, though possibly limited, occurrence of the supernormal is required by any reading of the gospels which takes account of the incompleteness of the scientific picture of nature, and which does justice to the centrality of Christ in human history.

So much then for conclusions which are absolutely warranted by the argument. How much further can we go with any reasonable assurance?

We have satisfied ourselves that in its essentials the Christian

tradition has been preserved with commendable accuracy. We admit the genuine occurrence of mighty works. We know that our Lord still lives: that He was fully vindicated by the Father. But we must admit also the tendency to over-emphasize or to exaggerate the miraculous elements of the tradition in the interest of edification. We may allow perhaps that the number of those fed in the wilderness was substantially less than five thousand. We may believe that the number of vessels of wine at Cana has been adapted to bear a mystical significance. Possibly many details have been modified in perfectly good faith as these stories were current in the early Church. Nobody is capable of reaching finality on the question which miracle stories are completely reliable accounts of real objective historical occurrences: and in that event none of us can do more than indicate his own personal position. There is a point at which the critic must 'come off the fence,' and take the risk of making a statement of faith. For my own part I am content to accept the miracle stories, almost without exception, in the more primitive of the forms in which most of them occur, as sufficiently accurate accounts of events which actually took place. Obviously, however, I cannot defend this position in detail. On the question of the Resurrection we can and should go a great deal further. We can: because the event is unique, and not merely one of many somewhat similar events; and because it is narrated in much greater detail by a number of writers. We should: because belief in the Resurrection, in some sense of the words, is central to Christian theology.

Let us consider then what appear to be the facts of the first Easter Day. We rule out right away the possibility that the whole belief in the Resurrection is the result of wishful-thinking, hallucination, or fabrication. We do this because we have satisfied ourself beyond all reasonable doubt that an objective vindication of our Lord's life, in some sense of the words, must have taken place. We rule out also the possibility that the objective event, whatever it may have been, is so wrapped up in the language of myth that the historical truth is beyond recovery. It is all too easy for the critic to adopt either of these extreme views; but our duty

is to refuse to be hustled, and to examine the evidence with care, making such allowance as we can for legendary elements and mythological expression. First of all then, the empty tomb must be accepted as historical fact since it is integral to each of the narratives. Without at least this visible evidence there could have been no vindication whatever. The description of the folded grave-clothes by the fourth evangelist reads like a genuine recollection of what the disciples saw on entering the tomb. It would require a remarkably fertile imagination to invent these details. The folded grave-clothes are as necessary indeed as the emptiness of the tomb itself, if the conviction of our Lord's vindication is to be conveyed either to the apostles or to ourselves. For it is not only necessary that Jesus should be vindicated but that He should be *known* to be vindicated. The rolling away of the stone must remain something of a mystery. The earthquake, as recorded by Matthew, could have been the physical cause of its movement; and we need only to postulate some degree of co-ordination between God's normal ordering of nature and the requirement of His direct personal activity in willing that the tomb should be seen to be empty. However, the angel who is said to have rolled away the stone may be regarded as a mythical figure, a personalization of the normal activity of God in nature. So too we may regard the angels within the tomb as mythical figures, whose function in the narrative is to express the resurgence of faith as the women realized for the first time the tremendous truth of the Resurrection, and remembered that Jesus had indeed spoken of it, though at the time they had not understood Him.

Let us suppose now for the sake of argument that the only objective facts of the first Easter Day were the empty tomb, the earthquake, and the folded grave-clothes. In themselves these facts do not really constitute a full vindication of our Lord. They still require to be interpreted by the eye of faith before they are seen to imply either a vindication, or a gospel. In their different ways, 'He is risen: he is not here',⁷³ and 'He saw, and believed',⁷⁴ express the interpretation which converts the 'plain fact' into 'good news'. The words, 'rise', 'resurrection', which are necessary

for the interpretation of the objective facts so far revealed, are of course symbolic. They express no physical movement. They stand for a 'fact of faith' of which the only evidence so far is the *absence* of something. That initial belief in the Resurrection was a tremendous assertion which rested upon important but necessarily incomplete evidence. Reached as it was by such a gigantic leap of faith, could it have stood the tests of time and persecution? We may well doubt it. The question was bound to arise sooner or later, What happened to the human body of Jesus? This question had to be answered. There could be no mental satisfaction for the original disciples until it had been answered. The answer could be given in either of two ways: by the speculation of the disciples, or by the revealing of 'the body'. The former would involve a wholly mythical account of a Resurrection of the Lord's body and its exaltation to the heavenly places conceived as being above the earth; and Christianity would have been committed to a myth. The latter would involve the giving of a direct answer by God Himself to a question which human weakness must ask, and to which human weakness must otherwise supply a mythical answer. The human mind cannot possibly supply the answer on the basis of general human knowledge and experience, for the reason that the occasion is absolutely unique—nature is already transcended, even in the empty tomb and the folded grave-clothes. If the accounts of the resurrection appearances are supposed to be a wholly mythical answer to the question, 'what happened to the Lord's body?' we must still ask why the New Testament writers should be so insistent on the evidence of witnesses, even though we refrain from convicting them of direct falsehood in the narratives themselves. Myth does not need, and cannot have, corroboration by witnesses; for it does not belong to the objective realm of experience in which witnesses have any place. On the other hand, if God Himself revealed the answer in such terms as men could understand, then the insistence on witnesses falls naturally into place and is wholly necessary as an element in the kerygma. For my own part I have no doubt whatever that Jesus showed Himself after a unique manner to His disciples; and that while the accounts

of His post-resurrection appearances may well contain some legendary elements they are substantially accurate recollections of occurrences which were physical and more than physical, and which were witnessed by all the apostles. Accepting this view we shall not regard our Lord's Resurrection-body as a 'resuscitated corpse' (Bultmann's expression) but as a unique physical or quasi-physical bodily form which is recognizably His, and which bears the marks of His Passion; but which is not otherwise related to the material body in which He was crucified and laid to rest. The question, 'What happened to the Lord's earthly body?' is answered by the revelation of His Risen Body; and the question, 'What happened, after the appearances, to His Risen Body?' is irrelevant; for the Risen Body represents a completely new state of existence appropriate to the exalted Lord, but transcending entirely the limitations of ordinary material.

The resurrection appearances (apart from the appearance to Paul) were confined to the short period between the first Easter Day and Pentecost. They lasted long enough, however, to convince the apostles beyond a shadow of doubt that Christ is alive for evermore and that His vindication by the Father is complete. But in speaking of Him on the day of Pentecost and after, the disciples were driven to make some use of symbolic language. For now faith must express a two-fold truth: (1), that God Incarnate has returned in His true humanity to the presence of the Father, there to make intercession for us; and (2), that He is still present in His spiritual power to guide, to protect and to sanctify, those who have given themselves to Him in faith. The doctrines of the Ascension and of the Spirit are, among other things, the theological expression of this two-fold truth. The last of the resurrection appearances has been endowed with a special significance, expressible only in symbolic language. 'This same Jesus, which is taken up from you into heaven, shall so come in like manner as ye have seen him go into heaven.'⁷⁵ They saw Him indeed, no more, for this was His last visible appearance; but 'into heaven' is the symbolic representation of a truth which is otherwise beyond human expression.

So far then from dismissing the final sections of the gospels

as purely legendary or mythological, we recognize that they contain an undeniable basis of objective fact. To this perhaps has been added a legendary element of no great significance. And ultimately the plain objective fact must be supplemented and interpreted by the use of language which is frankly symbolic. The merging of the objective, the legendary, and the symbolic, inevitably poses an exceedingly difficult problem for interpretation; but any tendency to over-simplify the problem by neglecting one or more of these three elements can hardly be true to the facts of the gospel as we are able to recover them. Our final conclusion is that we are on safe ground in treating the empty tomb, the folded grave-clothes, and some if not all of the post-resurrection appearances as objective facts; some of the detail in the narratives of the appearances as perhaps legendary in character; and the Ascension of Christ as a spiritual truth, expressed in the only possible way in the language of theological symbolism.

THE COMMUNICATION OF THE KERYGMA IN THE TWENTIETH CENTURY

However interesting and absorbing theological discussion may become and however necessary may be the critical examination of the New Testament, we must never allow ourselves to forget that the concern of the Church is to proclaim the gospel of Jesus Christ. Our studies and our discussions are not therefore ends in themselves but rather a preliminary to the preaching ministry of the Church in its widest sense. Every priest who seeks to proclaim the word of God, and every schoolmaster engaged in teaching 'divinity', knows full well that the 'spirit of the times' is hostile to the full acceptance of the supernatural. Nevertheless, the kind of discussion in which we have engaged is quite inappropriate for use either with a normal congregation in Church or with a class in school. Even in an educated community the majority of people remain unacquainted with either modern science or the methods of New Testament criticism. As preachers or teachers it is our duty to examine for ourselves the question

whether the occurrence of certain supernormal events is an authentic part of the Christian gospel, and in particular whether Christ's Resurrection is an objective fact. Such arguments as we have outlined above must be at the back of our minds as substantiating our own position. But we must preach our certainties, not our doubts. This does not mean that our preaching (or teaching) must be such as to inculcate a fundamentalist or literalist attitude to Holy Scripture. We have a duty, both to the truth itself and also to those of our hearers who are intellectually capable of grasping something of the arguments, to safeguard our own legitimate uncertainties if any. Perhaps the simplest and most effective way of doing this is by means of an analogy. In popular exposition the gospels may be thought of as four distinct 'pictures' of our Lord. Are they, however, the literary equivalents of photographs or of portraits? To think of them as photographs leads straight to fundamentalism and literalism, ignores the quite obvious minor contradictions between the different evangelists, and moreover gives them that static quality which ultimately is untrue to real life. To think of the gospels as four portraits, in which certain features are accentuated, emphasized, and even over-drawn, adequately safeguards the facts of accurate New Testament study, and succeeds in conveying a more dynamic, and consequently more life-like, representation of Christ. It is desirable to emphasize from time to time that the early Church did not find the same difficulty as we do today in accepting the occurrence of the supernormal; that it was quite prepared to exaggerate the miraculous element in the interest of edification; and that quite apart from complete objective accuracy the accounts of the supernormal have a spiritual and religious value in underlining the significance of the central Figure of the gospel. The fourth evangelist, it will be remembered, sums up his purpose in writing by the assertion that 'many other signs truly did Jesus in the presence of his disciples, which are not written in this book: but these are written, that ye might believe that Jesus is the Christ, the Son of God; and that believing ye might have life through his name'.⁷⁶ Provided that there is a substantial basis of historical accuracy in what is written, this claim and this

purpose still stand, even though in some particulars the super-normal element may have been exaggerated. Honest propaganda is still valid even though it may not be absolutely accurate in every detail. If we are careful to convey the impression that the gospels are portraits rather than photographs, and that they represent the total impression which Jesus made upon the minds and hearts of men, then the results of New Testament criticism are sufficiently safeguarded in our popular presentation.

The distinction between the personal and the impersonal aspects of the activity of God is vitally important, I believe, to any intelligent presentation of the Christian faith to the twentieth century. The simple believer all too readily makes the mistake of attributing everything which happens to him directly to the will of God. In so doing faith may sometimes be strained to the breaking point. The distinction between primary and secondary causes is altogether too difficult for popular exposition, but something which is roughly equivalent must be put in its place. The difference between 'personal' and 'impersonal' can readily be explained by analogy. A man's relations with his employer are impersonal so long as he does his work and receives his wages from the hands of a clerk. They become personal when he is called into the employer's office, treated as a friend, and thanked for his contribution to the firm's prosperity. A man's relations with a manufacturer are impersonal so long as he merely purchases the manufacturer's goods at a shop. They become personal when he is invited to the manufacturer's house, and shares a meal with him. On some such analogy it is not difficult to show that the regularity of nature represents the impersonal activity of God towards us. The regularity of the pay-packet and the standard quality of the manufactured article correspond to the normal ordering of nature. They provide a stable basis on which we can rely and by which we can plan our lives; just as the uniformity of nature provides a stable basis on which we can rely and which makes possible a morally responsible life. On the whole the impersonal relationship with the employer or manufacturer is for the common good; just as the normal ordering of nature is providential, impartial, and on the whole good.

Even though nature is ultimately controlled by God we have no right to expect favours; for His control is exercised impersonally. 'He maketh the sun to rise on the evil and on the good, and sendeth the rain on the just and on the unjust.'⁷⁷ Yet God is personal. Therefore, ultimately, we can expect to find His personal activity somewhere. His personal activity is that which transcends the normal regularity of nature. When it happens we may say that a miracle has taken place, or that God has answered our prayer. The personal activity of God expresses His character of love more fully than any impersonal activity can possibly do. If we believe, as the Church proclaims, that Jesus of Nazareth is God the Son Incarnate, then His life is supremely the place where we might expect to see the personal activity of God. In other words, we should expect the normal order of nature to be transcended in the life of Christ. We shall not be surprised to find that He worked miracles, that His birth was miraculous, and that He rose from the dead. In some such way as this the essential points can be made by analogy; and we can avoid creating the too simple impression that all that happens is directly the will of God—a naïve view which ignores the fact of evil, which for an intelligent person is too brittle to bear the strain of real life, and which in an unthinking person degenerates into a kind of fatalism.

On the basis of some such exposition of the personal activity of God in the life of Jesus Christ, we should have no hesitation whatever in teaching the miracle stories as records of actual events; though we may readily admit that we cannot expect to be certain of the exact details of every miracle. Similarly, no hesitation need be felt in proclaiming the Resurrection as an objective fact; and in treating the post-resurrection appearances as authentic physical occurrences. The faith in the Resurrection is the very centre of the Christian message. Without it, and without the emphasis on the apostolic witness, the kerygma is empty, and there is no gospel. The modern world needs vitally to recover its sense of Christ, risen, and exalted, reigning eternally as Lord of life. It needs to recover its sense of the supernatural. Without the insistent proclamation of the physical Resurrection

men can only drift in nebulous unbelief. Yet on the other hand we must have no hesitation in treating the Ascension as a reality beyond history which is clothed in the language of symbol. (Myth is an unfortunate word to use in popular exposition, for it has come to suggest something which is 'not true'.) And of course the importance of the doctrine of the Ascension is that it completes and emphasizes the triumph of the Resurrection. Christ is exalted to the Throne of heaven where He reigns as King. In the presence of the Father He offers His perfect sacrifice eternally. But to assert this is to speak in the language of symbol.⁷⁸

Thus, in spite of the 'spirit of the age' we must still proclaim the kerygma in its wholeness and in its historic form. We must do so with due regard to the difficulties which the modern scientific outlook places in the way of full Christian belief. Yet the *scandal* of the kerygma remains: not only the historic scandal of a crucified Messiah, but the modern scandal of the claim that the invisible God has irrupted into the historical process. Here is the hard fact of the Christian faith which challenges men to belief; the event of history which is from beyond history; the event with which man can come to terms only by bowing in worship and in obedience. The Church can never hope to preach a 'gospel' which is immediately acceptable to modern thought, for the temper of the modern world is hostile to the supernatural claim of true Christianity. It is therefore vitally important that we should not 'water down' the truth in a vain attempt to make the gospel acceptable. The fact is that Jesus of Nazareth refuses to be nicely catalogued as a teacher who was high-minded but ultimately mistaken about His supernatural character. He is God Incarnate—no less. He claimed the complete allegiance of all who met Him—and He still does. He claims the whole of our being: body, soul, mind, and spirit. There is no rest for us until we capitulate to His demands—and no salvation either. Of course we cannot fit Him tidily into our own ordinary everyday experience of the world. He transcends that experience completely. He fits into no pigeon-hole. He stands by Himself, alone and majestic. Somewhere, sometime, we have to make room

for Him in our minds and in our hearts—or we perish. The modern world will come safely through its crisis of belief by the grace of God, only if we who are committed to Christ have the courage to proclaim the historic faith uncompromisingly in its wholeness, with intelligence and with conviction.

CHAPTER III

Christian Ethics and the Scientific Age

A CRISIS OF LIVING

THE two aspects of our spiritual crisis which have formed the subject-matter of the previous chapters have concerned the impact of pure science on the thought and faith of Western Christendom. The former is of interest to the few: the latter influences the lives of the many. Yet the crisis of belief arises from the crisis of understanding; and in its turn leads to this final and outwardly most significant aspect of our spiritual crisis. What we have called the 'crisis of living' is concerned with the application of scientific knowledge. Action always springs ultimately from belief, though not necessarily from belief held explicitly. The implicit rejection of Christian belief by large numbers of people in the scientific age is ultimately responsible for the manner in which scientific knowledge has been applied. The ethical problems raised by particular applications have generally not been considered in advance by those who have been responsible for technical progress in the modern world; and the Christian voice has been heard too late to have any profound effect upon the course of events. Perhaps the most significant instance of the ethical problem being settled by default was the opening of the so-called Atomic Age at the close of the second world war. The essential scientific knowledge of atomic fission was in the hands of the experts just before the outbreak of war. A means was available for tapping the enormous resources of power hidden within the atomic nucleus. Such power could have

been used either for good or for evil purposes. In time of peace the capital cost of the necessary technological development might well have appeared too great; and atomic physics might well have remained, as it already had been for forty years or more, a subject of purely academic interest. In time of war, however, the expenditure of five-hundred-million pounds or more was readily sanctioned as the cost of producing atomic weapons. The result, as we all know, was that the Atomic Age opened with the explosion of the uranium and plutonium bombs on two cities of Japan; and the benefits of nuclear energy appeared as by-products of what was already the most gigantic and destructive armaments drive yet known to mankind. By the time the general public had any knowledge of the matter it was too late to consider in the light of all its possible consequences whether this particular large-scale application of scientific knowledge was morally justified. The Christian voice, and the voice of many who would not call themselves Christians but who were almost equally concerned with the true welfare of mankind, was heard too late. The ethical problem had already been settled by default; and it was virtually impossible to go back. This state of affairs is typical of technological progress throughout the modern world. When ethics are ignored, the only relevant consideration from the point of view of those responsible for new developments is the incentive to achieve some immediate goal—irrespective of the ultimate consequences. Men refuse to face spiritual issues as spiritual issues. Every issue becomes one of mere expediency. This attitude results from the widespread loss of faith which characterizes modern society. It is this refusal to face spiritual issues which leads directly to the crisis which, as we shall see, threatens our whole civilization with ruin; for in the Christian vocabulary 'crisis' means 'judgement'.

In discussing problems of conduct from the Christian point of view it has become customary to speak of Christian ethics. ✓ The phrase should be used guardedly, for by implication it may appear to reduce the Christian life to the keeping of a collection of rules, which is the very antithesis of any true Christianity. Rules there must be in any organized society, and it is desirable

that rules should have a spiritual sanction; but to present the Christian life in terms of a set of rules, however good, is ultimately disastrous. In Christ, law has been supplanted by grace; and from one point of view His whole work was a revolt against the older conception of law. Strictly speaking, therefore, there is no such thing as Christian ethics in the sense of rules of conduct by the keeping of which the Christian life is lived. The reason for this is that God's moral demands exceed anything that could possibly be set down in a code of rules. Both our Lord and St Paul were constantly misunderstood in their attitude to law. The meticulous keeping of the law resulted invariably in the self-satisfaction which, however unjustly, has come to be fastened on to the Pharisees. Yet neither our Lord nor St Paul condemned the law of Moses as something of no value. The law expressed the will of God up to a point. 'Think not that I am come to destroy the law, or the prophets: I am not come to destroy but to fulfil.'¹ The prophetic teaching of God transcended the demands of the law to the extent that it set motive above precept: and the life of Christ fulfilled and transcended both. St Paul taught that 'the law was our schoolmaster to bring us to Christ':² indeed that apart from the law we 'had not known sin';³ but in Christ we are 'dead to the law',⁴ 'for Christ is the end of the law for righteousness to every one that believeth'.⁵ The key words of the new life in Christ are therefore not 'law' and 'obedience'; but 'grace', 'vocation' and 'discipleship'. By grace we stand: we are called to be saints: we are disciples of the Lord Jesus. From our relationship to Him, an intensely personal and intimate relationship, derives our knowledge of God's will for us, the call to respond to it, and the power to attain to it. The manifold problems of conduct in the life of a Christian can never be solved by a simple appeal to a code: their solution is entirely contained within a personal relationship. Any discussion of the Christian way of life moves within the context of the life of Christ, Who is the revelation of God to men, and Whose disciples we are called to be. To be a Christian is to be in Christ, united to Him as a member of His Body. To perform a Christian act is to perform an act which is His, because we are in Him.

There is consequently, as we have said, no such thing as a specifically Christian ethic. There is a Christian doctrine of man, which sets man in the context of Christ and His redeeming work. And there is in Christ the pattern of what human life is intended to be. Before we can even enter upon our discussion of the moral problems raised for Christian living by the scientific and technological age, therefore, we must give adequate attention to the doctrine of man and the pattern of life which we see lived out for us by Christ Himself. To these matters we now turn.

THE DOCTRINE OF MAN

The Christian doctrine of man begins by recognizing man's status in relation to God. We have already discussed what is involved in the claim that God is the Creator of everything other than Himself which exists. All other being is derivative; not primarily in the sense that it came into existence either at a particular instant of time, or with time itself, for on this question we must be content to remain agnostic; but in the deeper metaphysical sense that it exists and is sustained in existence only by God's free act of will. Man as part of the created order shares in this essential creatureliness. Yet though we are not in a position to say anything with certainty about the creation of the world as a whole in relation to the time process, we can assert that both the human race and the individual man has an origin in time, an instant of creation. Not one of us who reads these words can claim to have been in existence in any sense whatever a hundred years ago.⁶ The material particles of which my body is composed have presumably existed in time for millions of years. But I, the human being, am of very recent origin. Even the race to which I belong has been in existence only for a minute fraction of the total time during which, on any estimate, the material world has existed. Man is very truly 'a thing of nought',⁷ moving on the stage of history for a mere seventy years or so, and passing away 'like a shadow' into the great unknown—creaturely indeed. If the world is God's creation, then in a quite absolute sense it belongs to Him. And man too, as the highest of God's

creatures, is responsible to Him for the way in which he employs his own time and the rest of the created order. This much is implicit in the creation myths which form the first chapters of Genesis, and in which the religious consciousness of Israel sought to express an essential aspect of man's creatureliness. But the religious tradition of the Jews inferred, and the Incarnation of God the Son proved, that man's status in relation to his Creator is something more than mere creatureliness. 'What is man that thou art mindful of him: and the son of man that thou visitest him?' wrote the Psalmist. 'Thou madest him lower than the angels: to crown him with glory and worship.'⁸ The status and destiny which the Old Testament only dimly discerned was revealed in its fullness by Christ. In Christ man was seen as he was meant by God to be. The author of the Epistle to the Hebrews regards the words of the Psalmist, just quoted, as fulfilled in Christ; Who having tasted death for every man is crowned with glory and honour; and yet is not ashamed to call His fellow men His brethren.⁹ It is only when God Himself takes the 'form of a servant' and is 'made in the likeness of men'¹⁰ that man's true greatness becomes apparent: a greatness, however, which is contingent upon the recognition of creatureliness; and which derives from the fact that man is made in the image of God and is capable of fellowship with Him.

Man's status as a being created in the image of God, and capable of having fellowship with God, raises the whole problem of conduct and choice. The doctrine of man necessarily implies his unique mental and spiritual endowment in terms of which fellowship becomes possible; and a real though limited freedom of the will, by which action is raised to the status of voluntary self-expression. The human being even in the most primitive state, or in quite early childhood, appears to have an innate sense of right and wrong; a moral sense which while not being infallible is, until warped by sin, a reasonably reliable guide for conduct. But while we rightly value this intuitive moral sense, we cannot be content as rational beings to base our understanding of what is morally right solely upon it. We must enquire what

in fact constitutes an act which is morally right. Many theories have been proposed as a rational basis of morality, ranging from the simple Old Testament view that God's declared law is the sole standard of right and wrong, to the modern views which would base morality either on pure utilitarianism or on an evolutionary trend in the history of the race. The Christian view of life, while recognizing the partial truth which they contain, can be satisfied with none of these. The Christian conscience cannot assent to the view that the moral law is an external fiat, even the fiat of God, which could have been otherwise by the 'whim' of the Creator. Nor can it acquiesce in the view that what is morally right for one particular man is determined by what is of the 'greatest good' of the whole of human society collectively; nor in the evolutionary view which renders the moral law entirely relative. The Christian doctrine of man must claim that the basis of the moral law is to be found in the purpose which human nature was created to serve. Man was created for fellowship, with God and with his fellow men. Consequently the moral law is the law according to which human nature may give and enjoy fellowship, which is the true purpose of man's existence. In this way is safeguarded the fact that the moral law has its origin in the goodness of God, for fellowship with God is primary. In this way too we account for the intuitive sense of right and wrong in a character which is created in the image of God. We account moreover for the fact that wrongdoing of any kind breaks the sense of fellowship which a man has with God when he is in a state of grace. That Adam should hide himself when he 'heard the voice of the Lord God walking in the garden'¹¹ is entirely in keeping with the fact that sin breaks the sense of fellowship and sets up a spiritual barrier between a man and his Maker. We may therefore define right conduct as conduct which preserves full fellowship between man and God, and between man and man: wrong conduct as conduct which breaks fellowship between man and God, and between man and man. And it is at once apparent, when we define our terms in this way, that the moral law can in no sense be represented as a code of rules; for fellowship belongs to an

entirely different level of activity from the keeping of rules, however good the code may be.

The direct result of any failure to keep the moral law is a breach of fellowship. In relation to God this means that man experiences a sense of guilt. In relation to his fellow men the result is mutual distrust and suspicion, leading frequently to further breaches of the moral law, and ultimately to hatred and retaliation. In both sets of relationships, the vertical and the horizontal, the breakdown of fellowship tends to become more and more complete. Indeed it can only be saved by a free act of grace by the injured party. But fellowship is not only the ultimate purpose of human life; it is the condition of any life worthy of the name. At the human level, therefore, the logical result of moral failure is the gradual disintegration of society. In our relation with God the result is even more disastrous, for man is a completely dependent being. Through the mercy and long suffering of God the sinner, though under judgement, is still held in existence and still receives God's good gifts in so far as these come to him through God's impersonal activity. Moreover, he is still the object of supernatural grace, leading him to repentance. Man, however, has been created with a real though limited freedom: and God invariably respects that freedom in His relations with mankind. He does not, or cannot, compel repentance; just as He does not, or cannot, compel love. It is, therefore, possible for man to continue in a course of wrong-doing by his own free choice; for his sin to harden into habits which are exceedingly difficult to break; and for all sense of fellowship with God virtually to disappear. Yet ultimately man is dependent for his very existence on fellowship with God. When the moral law is wantonly set aside, man cannot fulfil the purpose for which he is still held in existence in the hope of final repentance. Moral failure, therefore, is gradually destructive of personality. If carried to the limit, without repentance and in spite of the grace of God which seeks to restore the sinner, sin must inevitably issue in the complete destruction of human personality. Through his sin man places himself under the judgement of the righteous God. The consequences are broken fellowship, leading to a

warped and shrivelled personality, and finally to self-destruction. These consequences represent indeed the righteous judgement of God, though they are to be seen not as vindictive retribution but rather as the logical result of man's own free choice and free conduct in a world which is the creation of Absolute Righteousness.

Christian theology has taught consistently that man is a fallen creature. The origin of evil and the existence of original sin present one of the most difficult problems of speculative theology. Following the biblical doctrine implied by the third chapter of Genesis the traditional teaching is that man was created innocent, that he was tempted by an evil spiritual power, that he sinned, and that the effect of this first sin has been permanently to warp human nature itself and to create a disposition towards sin which is inherent in all men from birth. To many people this still appears to give an adequate account of the matter. However, it presents a number of serious difficulties which must not be overlooked: (1) It leaves the real problem of the origin of evil unsolved. The problem is to understand how any spiritual being, whether embodied or discarnate, which *ex-hypothesi* is created innocent and free, uses its freedom to rebel against its Creator. To account for subsequent acts of sin is less difficult, for there is both the possibility of a moral infection running right through a created species and also the prior existence of an evil example to be imitated. But to account for the first act of sin or rebellion is an entirely different matter. It can only be ascribed to spiritual pride; but it is debatable whether the problem is made any easier by attributing the initial act of spiritual pride to a purely spiritual being.¹² (2) If we accept the evolutionary view of the origin of the human species it is difficult, if not impossible, to assign a particular epoch to the emergence of man as an embodied spiritual being; and consequently difficult to conceive of primitive man even for a short time as being in a state of innocence. We can know so little about the origin of the human soul beyond the fact that it is God's creation, and so little about its relation to or dependence upon man's physical nature, that it seems unwise to commit ourselves to a theological theory which

presupposes the separate creation of the soul and its fusing on to a species which is the product of evolution and outwardly human in every other respect. (3) It is by no means clear how the effects of an historical fall could be transmitted genetically to the whole human race unless in fact the whole race is descended physically from two original parents, which is scarcely a tenable view. The transmission of an inherited tendency to sin within the members of a common stock is conceivable. A number of separate falls (in the traditional sense of the word) taking place in different parallel branches of the human family, derived each from different original parents, is conceivable though perhaps not likely. The spread of a tendency to sin through the imitation of a bad example is understandable, and its results might be indistinguishable from the transmission of a similar tendency by genetical processes. Again, when we know so little, it is unwise to commit ourselves to one particular theological theory.

In view of these very real difficulties it is well to have an alternative picture of the origin of evil in the human species, even though we shall be wise to reserve final judgement between the two theories. The alternative is to regard the Genesis story as an inspired myth which gives a real insight into the *power* of evil, but which in no sense provides an accurate theological account of its *origin*. We then suggest that each individual as he emerges into self-conscious life is capable of the fundamental act of spiritual pride, which is of the essence of sin, at the particular level of life to which he has advanced. We no longer need consider whether the whole human race is descended from common parents, nor whether the creation of the human soul required a discrete act of creation for which a place and a date are assignable in principle. Instincts of self-preservation or self-propagation would then be the raw material from which sin developed in the far distant past as self-consciousness first emerged. We no longer need to claim that man was once innocent but by his own free choice fell from innocence. Instead we should regard him as potentially innocent, but as failing to follow the line of moral development which would have led him to become what God intended him to be. Instead of a 'fall' we have rather a 'failure to

rise'. Primitive man, as soon as he emerges on the stage of history, is already in a state of 'fallenness' even though there has been no historical 'fall'. Original sin is seen to be original self-centredness. We may conceive that the propagation of the tendency to sin takes place partly through genetical processes;¹³ and partly through the imitation of the evil which already exists in society. Add to this the fact that each newly-born individual is capable of repeating in his own self-conscious life the fundamental act of spiritual pride, and the continuing existence of evil is sufficiently well accounted for. There seems to be no way of deciding between the rival theories. Each fails ultimately to explain the act of spiritual pride which is the origin of sin: and of course it should be clear that to regard self-centredness as a necessary adjunct of finiteness, whether in man or in a pure spirit, is to make God responsible for evil. We cannot trace the sequence further back than to an act of spiritual pride in an individual, or in individuals; who, being either innocent or in that state of innocence appropriate to the level of their self-conscious life, could have been under no conceivable necessity to act as they did. The former theory places the rebellious act in the realm of pure spirits: the latter in the history of the human race itself, including the life history of every individual. Those who feel the force of the objections which have been brought against the traditional theory of the origin of evil will naturally be disposed to accept the alternative view as the more satisfactory working hypothesis. But in either event the essential point is that man has misused the freedom with which God endowed him, and still continues to misuse it, to disobey the moral law, to break down fellowship, and ultimately to risk self-destruction. Every individual is born by nature into a race which is already deeply sunk in evil; and consequently every individual partakes in the tendency to sin which has infected the entire race. How the fact is to be accounted for is of less importance than that it should be recognized. The Christian doctrine, alone among possible views of man, takes seriously the fact that human nature is 'fallen'.

So far, however, from being merely pessimistic in its view

of man, Christianity is the only religion which holds out any ultimate hope for the human race. The rational basis of Christian optimism is the fact that this world is the arena of the activity of God; and that God is perfect Goodness and perfect Love, allied to Almighty Power. We have seen already that the evolutionary process has been guided and watched over by God; and that the creation of the human race and its endowment with a limited freedom has involved a voluntary limitation of God's own absolute power over His creation. In other words, the creation of self-conscious beings, endowed with freedom of will, necessarily implies the possibility of evil. In His wisdom God must have recognized the possibility from the very beginning, and must have counted the cost. In His wisdom too, God has not taken away the freedom which He has given: He has not annihilated His rebellious creation, but has patiently held it in existence, so as to keep open the opportunity of repentance and restoration to fellowship. The fact that continuance in sin issues ultimately in the self-destruction of the sinner is sufficient guarantee of the final defeat of evil. The redemptive activity of God in human history is sufficient guarantee that His purpose will ultimately be achieved, at least in some part of His creation. The redemptive activity of God is the principal theme of biblical history; the thread which runs through the whole complex pattern of law and covenant, disobedience and judgement, inspiration and prophecy, up to the fulfilment of the promises in the fullness of time by the coming of Christ. It is only by great mental effort that we can think ourselves into the position of men who yearned for the restoration of fellowship with God in days before the messianic expectation was fulfilled. The prophet Micah¹⁴ gives us a vivid picture of the almost unbearable tension under which a sensitive soul must live before the coming of Christ. Weighed down by the sense of sin and broken fellowship, he longed to come into the presence of 'the high God' and to know His forgiveness; yet he possessed no means to make atonement for the sin of his soul. 'To do justly, and to love mercy, and to walk humbly with . . . God' is the central aspiration of his life; yet an aspiration which is humanly unattainable once

fellowship has been broken by sin. St Paul too from the experience of a life which was once at enmity with God, can write of the unresolvable conflict between aspiration and attainment—'the good that I would I do not: but the evil which I would not, that I do'.¹⁵ In Christ all this is altered. God has achieved in the perfect humanity of His Son what man could not achieve. A perfect offering has been made by Man on behalf of men, through which forgiveness is available and fellowship is restored. The barrier of human sin is broken down; the new covenant in the blood of Christ initiates the new creation and remakes unity. Through admission to the New Israel, which is the Church and Body of Christ, man finds himself in a new relation of fellowship with God and with his fellow men. Sin indeed remains, but 'the ministry of reconciliation'¹⁶ committed by Christ to His Church remains also. By the working of grace within the supernatural life of the Church the Christian knows that he is 'being saved' through 'the power of God'.¹⁷ The Church of Christ is the instrument of the new creation. It is in fact the new fellowship in Christ, which is offered to man as the only alternative to ultimate self-destruction; and in it is being fulfilled the eternal purpose of God for fallen humanity.

THE PATTERN OF LIFE IN CHRIST

The human life of Jesus of Nazareth is the supreme revelation of God under the self-imposed limitations of the Incarnation. Perfect Manhood united with perfect Godhead in the Person of Christ declares infallibly the will of God for men, both in His teaching and in the character of His life. 'He that hath seen me hath seen the Father.'¹⁸ It is to the life and teaching of Christ that we must go for the solution of all our moral problems; for God has declared Himself in a life with a richness and fullness which could be given in no other way. And since in Christ there is perfect unity between aspiration and attainment, it might appear that all problems of human conduct ultimately resolve themselves into the question: What would Jesus have done in such and such circumstances? A moment's thought, however, shows

that in this form the question is altogether too naïve: and that for two reasons. In the first place, many of the moral problems of today are far more complex than those met with in first-century Palestine, when life was organized on the basis of a simple agriculture within a small closely-knit community. Secondly, when the circumstances of any actual moral problem are stated fully, they are seen to include the previous wrong-doing of all the parties concerned. Since Christ was sinless He can never be simply transported into a moral situation of our making and, playing the part of one of the parties, be asked what He would have done in that situation. It is for these reasons, the second even more than the first, that discussion of ethical problems in Christian terms is sometimes inclined to lose touch with reality. We must be careful not to ask questions which are strictly meaningless. When Jesus made His choice between different possible lines of conduct, the choice lay between one course which was right in an absolute sense and other courses which would have been sinful. It was always a choice between white and black. Very often in the circumstances in which we find ourselves, the choice lies between a number of courses all of which are to a greater or less extent sinful. Our choice lies between a selection of greys. Clearly, our duty is to choose the course which is the least evil in the light of all its consequences. The lesser evil is the *right* course of action in a situation which is already infected by sin. In referring the problem to the life and teaching of Christ, we are emphatically not asking what He would have done in similar circumstances: we are seeking to know in the light of His life and teaching which of the courses *still open to us* is in fact the lesser evil.

One of the functions fulfilled by the Holy Spirit in the Church is to guide us 'into all truth', for Christ promised His disciples that the Spirit 'shall receive of mine, and shall show it unto you'.¹⁹ No doubt this promise must be understood to include both faith and morals. We are concerned here only with the latter. Expressing our Lord's words in the language of today we may say that the Holy Spirit will re-interpret the mind of Christ afresh to each generation of Christian disciples in the

failure Himself rather than enlist support by methods which did not leave open the highest motives to those to whom His appeal was to be made. In His arguments with His opponents Jesus invariably displayed the greatest courtesy. While challenging their position He never erred in lack of charity, nor employed language which was calculated to rouse opposition. Even in making claims for Himself, nowhere did He go beyond the sober truth. If opposition ensued it was opposition to the truth itself, not to the manner in which the truth was stated. When His enemies were doing their best to trip Him up in His talk during the last week in Jerusalem, His courtesy never failed. The incident of the tribute money, though we are told that Jesus knew His opponents' hypocrisy, was conducted by courteous enquiries, and brought a completely courteous ruling, 'Render to Caesar the things that are Caesar's and to God the things that are God's.'²² The fatuous question about the woman who had had seven husbands received the entirely courteous reply, 'Do ye not therefore err, because ye know not the scriptures, neither the power of God?'²³ And finally in His acceptance of His Passion at the hands of sinful men, for whom He prayed, did He not show supremely that respect for human personality which is of the essence of God's dealings with men? The taunts of the priests and the soldiers brought no bitter reply. The one dying robber received nothing but consideration and forgiveness; the other complete forbearance.²⁴ Absolute respect for the sacredness of human personality marked all Christ's dealings with men.

(2) Not only did Jesus respect human nature; He trusted it. A very large part of our Lord's teaching was given in the form of parables. The whole point of a parable is that it shall elicit a true judgement on a situation from those who hear it. It is the very antithesis of the 'steam-roller' technique of teaching sometimes so congenial to men of a lesser calibre, who seek to impose their own ready-made opinions on those whom they teach. Our Lord's parables are commonly told in a way which explicitly asks His hearers to draw their own conclusion: 'What man of you, having a hundred sheep. . . ?'²⁵ Or again, 'What think ye? A certain man had two sons. . . .'²⁶ Or the frequent conclusion,

'He that hath ears to hear, let him hear.'²⁷ Jesus not only refused to impose opinions ready-made on other people: He trusted normal human nature to draw the correct conclusion once a true comparison was set forth in parable form. So far from being a cynic where human nature is concerned Jesus consistently expected the best of people. Throughout His public ministry He set His standard high (perhaps impossibly high, some might think) and relied solely on the human response to pure goodness. He was always ready to suffer misunderstanding Himself, and worse, rather than abate that standard of perfect goodness when people refused to respond. He was never willing to implement His will by the use of force, except on one single occasion; for the use of force would have been in flat contradiction to His principles. That one occasion, of course, was the cleansing of the Temple;²⁸ when His motive was not His own but His Father's honour. Afterwards His disciples recalled the words, 'The zeal of thine house hath eaten me up',²⁹ and saw the incident in its proper perspective. Perhaps the most outstanding example of our Lord's complete trust in human nature is provided by the fact that He committed His teaching, His authority, and His Church³⁰ to the keeping of men, and by no means exceptional men at that. For an unthinking person of naïve character to display such openness and trust in human nature might not be surprising. Jesus, however, saw deeply into human character. Neither natural goodness nor the depth of spiritual wickedness escaped His notice. We are told that 'He knew what was in man';³¹ and that from the first He knew the character of Judas.³² Yet in spite of, or more truly because of, His knowledge He was ready to trust human nature to the uttermost.

(3) Christ constantly emphasized the importance of the child-like character as the condition of inheriting the Kingdom of God. 'Whosoever shall not receive the Kingdom of God as a little child, he shall not enter therein.'³³ 'Except ye be converted, and become as little children, ye shall not enter into the Kingdom of heaven.'³⁴ In the same vein we have Christ's insistence to Nicodemus, 'Except a man be born again, he cannot see the Kingdom of God.'³⁵ In what sense did Jesus demand the child-

like character, or the new birth? What is it in the childlike character which commended itself to our Lord? We may be sure it is not any of the traits peculiar to children who have been pampered and petted; or to children who have been allowed too great a freedom of 'self-expression'. Nor should we suppose that our Lord is commending the uncritical simplicity of children as a characteristic to be emulated by adult Christians. A child which is reasonably natural, and unspoiled by indulgent parents, has certain qualities which are obviously relevant to the Christian life, such as openness, gratitude, receptiveness, enthusiasm, boundless energy, innocence, potentiality. These surely are among the traits which our Lord had in mind, and which endeared children to Him. He commends openness of character when He requires His disciples to be 'wise as serpents, and harmless as doves'.³⁶ Time after time simple gratitude is commended by our Lord, in the sense of ability to accept a gift, as one of the conditions of entry into the Kingdom. The normal adult very commonly fails in this quality. On being offered a gift, he may judge it to be well-deserved; or he may regard it as too small for a person of his standing (as when a man accepts a small 'tip' with obvious scorn). A child is naturally much more ready than an adult normally is to accept a gift, small or large, with gratitude. The Kingdom cannot be earned: it can only be given and received. This is the main point of the parable of the labourers in the vineyard,³⁷ and a subsidiary point of other parables. 'It is your Father's good pleasure to give you the Kingdom.'³⁸ The disciple must be ready to accept without any sense of his own deserts. This is *par excellence* the childlike characteristic. A natural child is receptive also in the sense of being ready to learn. He is full of enthusiasm—and our Lord wants enthusiasm in His service. The child is innocent, being not yet familiar with the ways of the world. He has potentiality: all his powers are still waiting to be directed and developed for God's service. For an adult to become as a little child is for him to retrace the steps by which he and the world in which he has lived have spoiled the openness, the innocence, and the potential goodness of human nature as God created it; and having retraced

the steps, to start again as one of the children of the Kingdom, humbly grateful for God's free gift of life in communion with Himself. The childlike qualities which Christ commends may appear to be far removed from the complex problems of modern society. In fact they are vital to the restoration of the fellowship which man has broken, and without them such problems can never be solved.

(4) More than once Christ laid great stress on the secret of inner contentment. True happiness is not the result of great possessions, but of an attitude to life which sits lightly to this world's goods and the position or security that goes with them. 'Blessed are the meek . . . the merciful . . . the pure in heart . . . the peace-makers.'³⁹ 'Blessed are ye poor.'⁴⁰ When asked to intervene in the distribution of a father's estate between two brothers, Jesus said, 'Take heed, and beware of covetousness: for a man's life consisteth not in the abundance of the things which he possesseth.'⁴¹ He went on to tell of the foolish man who pulled down his barns and built greater, not thinking that his soul would be required of him that very night. The same warning against trust in riches is contained in the parable of the camel and the eye of a needle: 'How hardly shall they that have riches enter into the Kingdom of God';⁴² and again in the saying, 'Ye cannot serve God and mammon.'⁴³ It is not that Jesus insisted on extreme asceticism as the condition of discipleship. Indeed He Himself was criticized for 'eating and drinking'.⁴⁴ The point is that God's good gifts are to be used and enjoyed, shared and not hoarded selfishly. True blessedness is the experience of those who have none of the arrogance which often goes with high position; who have a deep concern for the welfare of others less fortunate than themselves; who think no evil in their hearts; who seek for peace by being ready to give up even their rights; and who, whether they possess much or little of this world's goods, set no store upon wealth either as something to be gained or something to be kept. And because wealth as such is inclined to ensnare those who possess it, it should even be a ground of contentment to possess little. Perhaps the most striking of our Lord's many striking sayings is, 'Blessed are ye poor.'⁴⁰

(5) Much of our Lord's teaching, and certainly also His estimate of character, underlines the importance of motives. In His sight a pure motive stands far higher than an outwardly good act. In all questions of conduct the motive matters supremely, and is seen by God. This point is made again and again in the Sermon on the Mount, where it forms the basis of our Lord's teaching on such diverse subjects as almsgiving, prayer, and fasting.⁴⁵ Closely connected with motives are the 'thoughts of the heart', which may themselves be sin even though not accompanied by the outward act: notably in matters of sex.⁴⁶ It is the thoughts of the heart which defile a man, as our Lord insisted when questioned on the rules of ceremonial purity.⁴⁷ In condemning the practices of the Pharisees (if the passage, Matthew 23, is authentic) Christ constantly puts His finger on motives, desires, intentions and thoughts, as the basis of sin. In contrasting the Pharisee and the Publican in the Temple,⁴⁸ the contrast is between spiritual pride and humility, between self-satisfaction and penitence. The woman who 'threw in two mites', rather than the rich who 'cast in much' to the treasury, was commended for generosity, because she gave 'all her living'.⁴⁹ Everywhere Jesus emphasizes motives, where the casual observer sees only the outward act, and gives or withholds credit accordingly. The right disposition of the heart is what ultimately matters in the sight of God, and is the only possible ground of a life which is pleasing to Him.

(6) Consideration of motives and the right disposition of the heart leads us to what was at the very centre of Christ's teaching, His insistence on love as the guiding principle of life. In setting forth the two great commandments,⁵⁰ Jesus was but bringing together two injunctions of the old Law, and was apparently in line with the best of the Rabbis.⁵¹ However, it was not our Lord's habit to draw on the teaching of those who had gone before Him without enriching and deepening it. In this case He poured an entirely new content into the so-called golden rule. It is true, the deuteronomic law had called upon the Israelite to love the Lord his God with all his heart, and with all his soul, and with all his might. But in spite of the heights reached by prophecy, the current conception of God tended to

emphasize sternness rather than love, judgement rather than forgiveness. Jesus provided the motive to 'love the Lord thy God' by His portrayal of God as the Loving Father. Herein lay the uniqueness and the novelty of our Lord's teaching about God. The God and Father of our Lord Jesus Christ is the One Who comes out to meet and to restore the sinner. He is the God Who is seen perfectly revealed in the love and compassion of His Only Son. The levitical law had commanded the Israelite to love his neighbour as himself. But again the motive to love him was lacking. The neighbour might be the wretch at his gate, or the despised publican, or the hated Samaritan. By example more even than by precept Jesus showed the meaning of love for one's neighbour; and by His own infectious love supplied the motive which was lacking. The right disposition of the heart towards God leads spontaneously to love of one's neighbour, as is emphasized by the order in which the two great commandments were given. Love for God and love for neighbour were lifted from the human level to the divine. The disciple is 'in Christ'. The love of the Christian for the Father is a share in the eternal love which binds the Persons of the Holy Trinity. His love for his neighbour is a share in Christ's abiding love for men. The coinage of love has unfortunately become debased. Love as Christ showed it, both in living and in teaching, is never a sentimental thing. It is always *agape*. It always involves an element of self-giving and self-forgetting after Christ's example. Love in Christ's sense contains an element of sternness, combined with supreme gentleness: sternness towards self, gentleness towards the other person. It is an active willing of the true good of the person loved, of which the love of God is the supreme example and pattern.

(7) Jesus not only taught the quality of divine love, He demonstrated its power. *Agape*, with its sole concern for the true good of the person loved, is supremely self-giving. In its cost to the lover lies the secret of its power. The principle is laid down in our Lord's words, 'Greater love hath no man than this, that a man lay down his life for his friends.'⁶² Even in purely human relations the test of the depth of love is how far a person is ready to

go in service. Nothing but *agape* can inspire self-forgetfulness. Service to another person is always costly. The greatest cost which is conceivable is the complete self-giving which can sacrifice even life itself. It is seen sometimes in the acts of heroism which win the Victoria Cross; in less stirring circumstances it is seen in rescue work at sea or in a colliery disaster, or in the calculated self-giving of an antarctic explorer who chooses to walk out into the blizzard so as to give his companions a chance of returning to base. The self-giving of Christ on the Cross transcends all these examples of human self-sacrifice; not only in the suffering, both mental and spiritual, which He endured but in the magnitude of what His sacrifice achieved, and in the inspiration which it gives to all His followers. The power of love is its power to go on loving when there is no response, or when the only response is active hatred. Our Lord had taught, 'Love your enemies, do good to them which hate you, bless them that curse you, and pray for them which despitefully use you.'⁵³ He was perfectly clear how much harder it is to love when the only response is hate; yet He was equally emphatic that only so could the power of hate be broken. In relations between man and man as individuals He insisted on the principle of non-resistance and non-violence; turning the other cheek, not as an act of provocation, but in the sense of a refusal to retaliate. Self-giving in this sense tests the depth of love even more than does the sacrifice of life itself in an act of gallantry. What Jesus had taught in His ministry He put into practice perfectly in His Passion. We see it in His healing of the man's ear in the Garden of Gethsemane, in His silence before Caiaphas and Pilate, in His patient endurance of suffering and scorn at the hands of the soldiers, in His prayer for the men who nailed Him to the Cross: 'Father, forgive them, for they know not what they do.'⁵⁴ His love was unbreakable. Nothing which His enemies did or could do was able to weaken that love, or to bring from Him any word or act which did not perfectly express the unbreakable love of God for His creatures. Unbreakable love *is* the creative power which alone can transform an evil situation, bringing good out of evil. It is the unbreakable love of Christ shown in His Passion

and on His Cross which, subjectively, converts the sinner and, objectively, makes atonement for sin. The new covenant in the blood of Jesus, and the Church which is the society of those whom He has redeemed, are the creation of His unbreakable love. That quality of love, by which we have been restored to fellowship with the Father, and in which we have the opportunity to share by grace, is the only power by which fellowship can be restored between man and man. It is the power which breaks the vicious circle of retribution between man and man by accepting injury without retaliation; by 'absorbing' and 'neutralizing' evil, and so bringing good out of evil.

In these seven points we have sought to summarize the Christ-like quality of life. No such enumeration can possibly do justice to the wealth and fullness of what Jesus taught by word and act. Yet some such summary is needful if we are to grasp the meaning of His essential message. The human situation to which His teaching is relevant is one which does not date. Human personality is still sacred and should be respected, as God respects it. Ordinary human nature must still be trusted, because man is created in the image of God. The childlike character for which Christ looked is still the condition for entry into the Kingdom of God, and the only possible starting point for a truly Christian life. The adult who has wandered far from the innocence and openness of character with which he was created must still retrace his steps by grace if he is not to perish eternally. It is as true as ever it was that great possessions are no guarantee of real happiness, but rather a hindrance. Purity of motive is just as important today as it was two thousand years ago. The greatest of all commandments is still the commandment to love, and without the grace of Christ it is still impossible of attainment. The Christ-like quality of life, shown consistently by His teaching and in His actions, is something of eternal significance. It is the life which is 'the light of men',⁵⁵ springing directly from the divine character; the only life in which fellowship can be realized between man and man. Man has been created in the divine image with such a nature that he can realize his true destiny only as he lives the Christ-like life. Thus, the Christian way of life, which is God's gift to men,

is the putting-on of Christ. It is a growing into Christ's attitude to life by the humble acceptance of His guidance; a reproducing of Christ's quality of life in His fellowship and by His grace.

Yet while we have seen something of Christ's attitude to life in relation to those elements in the human situation which are unchanging, it cannot be claimed that the ethical problems of this twentieth-century technological age are immediately reducible to the simple personal terms of the New Testament situation. It is one of the functions of the Spirit within the Church to re-interpret the Christ-like quality of life afresh to each generation and in each new situation. In asserting this we are not unmindful of the past failures of the Christian Church either to seek or to follow the guidance of Christ mediated through the Spirit. We are anxious only to safeguard the theological truth that the supernatural guidance of the Spirit is available; and that in principle the Church has been equipped to bear an infallible witness in matters of faith and morals. The prime condition of its doing so is true humility. Supernatural guidance is not a substitute for the patient study of the technicalities of the modern situation, but is supplementary to such study. The Church, through its members therefore, must take the trouble to understand the contemporary problems from within, before presuming to speak in the name of its Lord. To speak without adequate knowledge is not only blasphemous, but brings the name of Christ into disrepute. Accurate knowledge of the technicalities is a *sine qua non* of the exercise of moral leadership by the Church in the modern age. Provided that this condition is satisfied we may rely on our Lord to fulfil His promise. A Church which is in living contact with the earthly life of Jesus, and which humbly seeks to know His mind, will be enabled to approach the new problems of each generation in a Christ-like manner and, having learned His will, to speak in His name.

THE PROBLEMS OF THE SCIENTIFIC AGE

The Christian life is lived in society. Each person has contacts with a limited number of others. Within the family contacts are

close. Sometimes almost equally close contacts exist outside the family circle; generally more remote contacts with a wider circle of friends, business and professional acquaintances, public servants and the like. All these contacts are essentially personal and direct; and though in practice never easy the ethical demands of Christ's teaching are immediately applicable and generally clear. At every period of history a man has also certain duties in relation to the society or societies to which he belongs. These too are dealt with explicitly in our Lord's teaching, which in principle at least sets them in relation to a man's duty to God.⁵⁶ Even in the relatively simple conditions of the first century, however, the delineation of such duties within society was by no means straightforward. Moreover, societies have generally been considered to have specific duties towards their individual members and towards one another. In considering the duties of societies as such, either towards individuals or towards other societies, it is usual to endow them with, or to regard them as having, a corporate personality; such that the more obvious ethical demands of Christianity become more or less immediately applicable to societies as well as to individuals. However, the concept of corporate personality has never been more than partially successful in dealing with such ethical problems, and in any event its unreality becomes apparent when we remember that it is individuals rather than societies which are answerable to God. Thus, even under simple conditions of life in which societies are small and relatively unpowerful, the translation of our Lord's ethical demands into the terms of the duties of societies towards one another, or towards individuals, presents many problems on which agreement is not easy. In the last three or four hundred years scientific and technical developments have brought about revolutionary changes in the relations between different societies and between societies and individuals. The improvements in transport have vastly increased the range of human contacts to the point at which the nations of the whole world are near neighbours. Modern means of communication have made it possible for the whole world effectively to overhear the inmost thoughts of other nations. Industrial processes have been developed so

enormously that men have become virtually dependent on manufactured articles which were unknown until a short time ago. Where previously articles made by individual craftsmen were sold locally, mass-produced articles are distributed on a world scale. The industrial undertaking of today employs thousands of operatives and sells to millions of customers. Improvements in medicine, surgery, and public health have roughly doubled the average expectation of life of the individual. With the general increase in world population new problems of agriculture, supplies of raw materials, and sources of industrial power have pressed upon society. New standards of education have been dictated by the demands of life in a technological age. The social conscience has been awakened to the care of the aged. In every direction the contacts of individuals and societies have become wider and at the same time more complex. The outward setting of human life has been changed beyond recognition. It has become a commonplace to assert that man has found it almost impossible to keep pace with changing conditions of living; and that old certainties have given place to relativities in a rapidly changing world.

If we were to ask to what causes we must attribute the manifold changes which have taken place in the conditions of life in the past few centuries, first on the list we should have to put the discoveries of modern science. Scientific investigation of nature has resulted in a body of ascertained and reliable knowledge of the material world, which has altered not only man's outlook but his power. The natural sciences give us power over nature, power over things, undreamed of before the scientific revolution. That which is explained can be harnessed and controlled. Man is able now to do things which previously he could not do. The technological civilization in which we live is the direct result of this increased power over nature. It is well at this point to make clear the distinction between science and technology; for the two are commonly confused. Pure science is the knowledge of nature, studied for its own sake as part of the general effort which man has made to understand his surroundings. Technology, or applied science, is the deliberate utilization of knowledge so

acquired for purposes which man deems to be worth while. The laws of electromagnetic induction belong to the realm of pure science. They find an application in the dynamo. The structure of the atom belongs to the realm of pure science: the application of nuclear energy for the generation of electric power belongs to the realm of engineering. And so on. The basic discoveries are the work of pure scientists, who frequently have little or no interest in their possible application. The scientist is interested primarily in the knowledge of nature for its own sake; exactly as the archeologist is interested in knowledge of ancient civilization for its own sake. When the discoveries of the sciences have been made, a time interval of many years generally elapses before anybody applies them for practical purposes. For instance, Faraday discovered the facts of electromagnetic induction in the year 1831. Electric lighting and traction only began to make their appearance towards the end of the nineteenth century. Atomic structure had been a chief interest of pure science since the beginning of this century and the principal facts were available during the 1930's. The development of atomic energy (for destructive purposes) was an episode of World War II. Once the application of a scientific principle has resulted in some major technological development there is always the incentive, supported by industrial concerns large or small, to investigate the basic facts in greater detail; and much uninspired investigation is dignified by the name 'research'; but broadly the distinction is valid between pure science and its industrial application. Thus in the last resort the changed conditions of life in modern western civilization are the result of numerous discoveries in pure science made by men who had not the remotest idea that their work would have such a revolutionary effect. They were students, scholars, academics, with the usual lack of concern for what are called practical affairs peculiar to their class. Applications have been inspired sometimes by the spontaneous genius of the naturally inventive mind, sometimes by the desire for financial gain, sometimes by the conscious desire to improve the human lot. Seldom have developments of this kind been either carefully considered in advance in the light of their possible influences on

human life in its wider aspect, or co-ordinated into a generally agreed plan for civilization as a whole. The result of the unplanned technological application of scientific knowledge has consequently been to create vast human problems, which have frequently gone largely unnoticed until they have reached unmanageable proportions. We shall concern ourselves here with three of these, and we shall attempt some discussion of them in the light of the Christian view of life which we have already outlined.

First among these is the problem of industry itself. If full advantage of modern technological development is to be taken, the individual craftsman, who sees the manufactured article through from beginning to end, has to be replaced by the specialized operative who is engaged on a single process which is repeated endlessly. Industrial potential is consequently dependent on mass-production, or specialization. Such specialization is accompanied by serious personal problems. Instead of the craftsman with his sturdy individualism and independence of outlook, we have the operative, whether skilled or unskilled, who comes to feel himself as being, and is often treated as being, a mere cog in a gigantic machine. There follows the creation of the managerial class, the segregation of management and operatives; and the consequent rift between the two social strata, within the one industrialized society. The further replacement of men by electronic devices creates the still more intractable problem of automation, and the redundancy of the human element. Modern improvements in the means of production may well become self-stultifying unless we are able to solve the personal problems of a highly industrialized society. Otherwise there is the real danger of man being controlled by the machine instead of the machine by man. The machine, in the sense of the total industrial process, is rapidly becoming top-heavy.

Second, we have the social and moral problems created by the advances in medicine, surgery and psychology. In earlier days disease was frequently unpreventable and incurable. As the medical profession has gradually mastered more and more of the diseases which otherwise afflict mankind, human life has become less subject to the old uncertainties, and the expectation of life

has been considerably extended. Mental disease too, though more common in its incidence as the pace of life increases, can sometimes be dealt with by the methods of neuro-surgery and psychiatry. Such treatment, however, results in many cases in important changes in personality. The new developments, by putting into human hands the powers to prolong life or to interfere with the seat of personality, raise important ethical questions, and place considerable responsibility on the society which ultimately sanctions their employment.

Third, in the advent of the so-called Atomic or Nuclear Age we have the most spectacular, though not necessarily the most important, of the modern problems which face civilization. The application of our knowledge of the atomic nucleus places at our disposal a new source of energy for exceeding anything previously known; and one which can be used either in peace, or with unprecedented destructive violence in war. The control of nuclear energy presents an exceedingly difficult problem in international relations, and one which must be solved if the human race is to survive.

As we have seen, all these problems arise from the indiscriminate application for practical purposes of pure scientific knowledge. They are rendered the more pressing on account of the extreme rapidity of development of both pure science and technology in recent years. Following as they have done on the breakdown of the organic unity of Western Christendom, and the general revolt against supernatural religion which has been one outcome of the scientific revolution, the new developments have allowed little opportunity to mankind to adapt itself to change sufficiently rapidly. The result has been that man's power has outgrown his moral capabilities. In seeking to judge the moral issues which are involved, however, we must be particularly careful not to let ourselves be swept away by the novelty of modern technological developments into the supposition that the moral problems which they bring in their train are equally novel. In one sense these problems are not new at all. They are as old as mankind itself. At all stages of his history man has possessed some limited power over nature; and it has always been

possible to misuse such power; as the myths of the early chapters of Genesis bear witness. Knowledge and the power which it confers are morally neutral. They can be used for good or for evil in accordance with man's free choice, either guided by or in revolt against such moral principles as he knows at any given stage of his development. The new factor is not the emergence of entirely new moral problems, but an extraordinarily rapid increase in our knowledge of nature. Consequently man's power over nature has correspondingly increased. Scientific developments and their application have given man new opportunities of working his own will, with immeasurably greater consequences. So far from actually creating entirely new moral problems, modern developments in science and technology have merely intensified problems which already existed in a less pressing form. At one point and only at one point shall we claim that scientific and technological advances have posed a new moral problem for mankind. This is in connection with the possible misuse of nuclear energy on such a scale that mankind is completely annihilated. Here we have something which is more than a mere difference of degree, in so far as the consequences of misuse on such a scale could produce an entirely new situation: namely an earth devoid of population. Apart, however, from this contingency we shall be wise to remember that the moral issues of the modern technological and scientific era are old issues greatly intensified; and consequently that the principles which are required for their understanding are not essentially different from those already familiar in the study of Christian theology.

What is the basic moral problem of the scientific age? Stated in its most direct form it is the question, Have we the moral right to use our new powers or skills exactly as we like? In the biblical story⁵⁷ of the fall of man the modern situation is reproduced exactly in mythical language. We read there that God put man in a garden 'to dress it and to keep it'. God's world is a place where there is order, not chaos: it is a garden, not a wilderness. Man was charged with the duty of maintaining and even improving that order. He was given permission to eat freely of the fruit of the trees of the garden with a single exception: he must

not eat of the 'tree of the knowledge of good and evil' lest he die. In other words, mankind has the right to use all the resources of nature for legitimate purposes. Yet a limit is placed upon his freedom to do exactly as he may choose. To eat of the forbidden fruit has been interpreted as meaning to grasp greedily at the knowledge, power, and resources of nature without regard for the will of God to Whom the garden belongs.⁵⁸ In other words, right use is permitted: exploitation is forbidden. The essence of the temptation which is put into the mouth of the serpent is the suggestion that surely God would not make such narrow-minded regulations, and that the fruit of the tree in the midst of the garden is singularly attractive: so much so that to eat of it cannot conceivably be attended with the threatened evil consequences. 'Ye shall not surely die.' Failure to obey God's commandment resulted in the breach of fellowship which is the experience of the guilty. We need not be so naïve as to imagine that the biological fact of death is the direct consequence of 'man's first disobedience'. We can hardly fail, however, to recognize that refusal to obey God's righteous commands places man under sentence of death in a very real sense, for by his exploitation of nature he is within sight of destroying himself. The basic moral problem of the scientific age is quite clearly the moral problem of the story in Genesis; but 'the tree in the midst of the garden' is now bearing much more fruit than ever it did previously. Again it would be naïve to suppose that the only way out of our present situation, in accord with the law of God, would be to retreat into an extremely primitive form of civilization and to refuse to use any of the benefits of modern times. The first reaction of some well-meaning but quite unrealistic people to the explosion of the first atomic bombs was to suggest the remedy of 'destroying the formula'. We have no right to run away from our moral problems, and indeed we cannot do so. God has given man the mental ability to make scientific discoveries, and the spirit of enquiry which leads him to do so. We are intended to discover the secrets of nature; and we are intended to use them in accordance with God's will and for our own true good. God's will for man is not primitive simplicity, except in primitive times, but an

advanced degree of civilization, accompanied by the exercise of true moral responsibility—a life in which God's good gifts are properly used in the fellowship which is His greatest gift.

To draw an analogy from the parable of the husbandmen, we have been placed in a vineyard, which is God's property because He created it. We are here not as owners but as trustees. We are not the Lord of the vineyard, but mere husbandmen. If we abuse our position as trustees and husbandmen we place ourselves under the judgement of God. Nobody who considers the drift of western civilization from crisis to crisis in the light of Christian theology can very well doubt that this is precisely what has happened. Man has abused his trusteeship in God's world. He has employed his scientific knowledge to exploit nature rather than to use it wisely in accordance with God's will. The impasse into which our society is moving is the outward sign of judgement, the sentence of death upon our civilization. Industrial injustice and unrest, the fear of 1984, and the terror of the hydrogen bomb are the signs which should make us think again before it is too late.

THE INDUSTRIAL SOCIETY

The industries of today are the direct descendants of the cottage crafts of earlier times. The changes which have taken place since the beginning of the industrial revolution are no doubt enormous, yet nowhere has there been any actual discontinuity. Machines of a simple kind, hand operated, have been in use for centuries: modern machinery is larger, more complex, power-driven, and consequently capable of producing more goods in a given time. Mining, both of ores and of coal, has been going on for centuries: modern mines are deeper, and more extensive, and employ mechanical means where previous generations used manual labour unassisted. Transport, both of men and of materials, by wheeled vehicles and in ships, has been available for hundreds of years: modern transport is power-driven, more rapid, and capable of shifting larger loads. The changes which have taken place have indeed been great, but by no means dis-

continuous. There has been a gradual process of development, at an ever-increasing rate, but always continuity with the past. Each new improvement when first it appeared gave only a slight immediate advantage to industry, but with the promise of more to come as the device was gradually perfected. All this is fairly obvious, and for our purposes not very important, except as a background to the questions of real significance which we must attempt to answer: Why has modern man developed his industries in the way he has? What is the motive which has activated all the manifold changes? Why has mechanical power become generally adopted? Why is industry carried on in vast factories? Why is everything in the modern industrialized society bigger and faster than the corresponding thing, say, two hundred years ago? To some, these may appear to be utterly foolish questions to ask. Many people, indeed most people, nowadays would take the view that if quicker methods and greater output have become possible as a result of increased scientific knowledge and technical ability, then of course they will be adopted. Behind this attitude lies a complex of motives which has been left unexamined. It is these motives which are important if we are even to begin to understand the present situation in industry. Why does man choose the methods which are capable of producing the greater number of manufactured articles at the greater rate, rather than continue in the simpler life to which he is already accustomed?

Some would answer that without modern technological developments the earth could not support its present population; in other words, that man's will to live and to provide a sustenance for his children is the motive behind the developments of the past two centuries. Now there is a measure of truth in this assertion—which is the only reason why it can pass for the whole truth. Men prefer comfortable half-truths to the whole truth, which may be unpalatable. But anyone who examines the total wealth of any western nation in relation to the population knows perfectly well that the average wealth per individual has increased enormously over the years. The average standard of living, reckoned in terms of amenities enjoyed, has increased by

leaps and bounds. The other half of the truth is therefore that technological development has enabled us to enjoy a vastly higher standard of living than our fore-fathers; and it is abundantly clear that the desire for this higher standard has been a principal incentive to increasing industrialization. We have already insisted that mankind is entitled to use its intelligence and the resources of nature in order to secure an advanced degree of material civilization. The Christian religion is not concerned to tie men down to a primitive past. But as Christians we must question whether the search for a higher material standard of living has not been allowed to become an end in itself, an obsession, which has displaced almost all other motives from the life of the average man. When all allowance has been made for the legitimate needs of an expanding population, and a reasonable and gradual increase in the general standard of living, it is unquestionable that the chief incentive behind the modern industrial society of the west is sheer personal gain, naked and unashamed. The same desire for personal gain activates the whole personnel of industry from the top to the bottom, from the company director down to the lowest employee. By personal gain as the incentive we mean the burning desire for more and more *things*, the products of industry; or for more and more *wealth* with which to purchase the things. We are not suggesting that under no conceivable circumstances is the desire for personal gain a legitimate incentive, compatible with Christian principles. It is true we have insisted that the key words of the life in Christ are 'vocation' and 'discipleship'; from which it follows that the only ultimate motive for the Christian is the desire to do God's will. But in a civilization in which all do not profess to be Christians, and in which those who do so are in different stages of discipleship, there is still a legitimate place for other and lower motives; of which personal gain within moderation is no doubt one. Nevertheless, all moderation has been thrown to the winds. If we are honest, we must admit that a wholly inordinate desire for personal gain has been allowed so to take control of our modern industrialized society that it has ousted all other motives. We have reached the stage where the manufacturer asks himself only what

profit is to be made by marketing a particular product; and the workman asks only what money he will get in his employment. The first indictment which must be brought against our industrial civilization is that we are all far too much concerned with mere personal gain, and with the possession and enjoyment of every conceivable device which industry can produce; from cars to television sets, from refrigerators to hair-driers. Our Lord commended the blessedness of relative poverty. He denounced covetousness. He insisted that 'ye cannot serve God and mammon'.⁵⁹ He dismissed temptation in the words, 'Man shall not live by bread alone.'⁶⁰

To pass now from generalities to details, what must we say of modern methods of mass-production? The essence of such methods is that one person endlessly repeats a single process; either controlling a machine which produces a single part in large numbers, or performing a single operation on a part, or fitting a particular part to the manufactured article at one particular stage of its construction. Why does modern industry adopt this technique of specialization? The reason without doubt is that greater uniformity, larger output, and lower price are thereby obtained. Without some degree of specialization and the associated semi-automatic machinery capable of working to very fine tolerances, it would be virtually impossible for a motor manufacturer, for instance, either to market his products at a 'reasonable' price or to maintain a stock of cheap spare parts for the repair of his vehicles. In other words, some degree of specialization or mass-production may be justified in the public interest. Economic grounds have a limited validity, which we cannot ignore. But in the minds of a great many people, economic grounds are presumed to be entirely valid in any matter that concerns industry. Why? Only because the profit motive has come to be recognized as the only valid motive. It would be unthinkable that the manufacturer should adopt any other principle in planning his works; for this would mean a more expensive product, lower sales, and (if faced by a competitor using mass-production methods) possible bankruptcy. Within limits the profit motive is legitimate. Within limits economic grounds are valid—for

who in his senses would choose an expensive way of manufacturing an article when a cheaper way, *equally good in every other respect*, is available? But is the cheaper way, namely, complete specialization, equally good in every respect? What is the cost in terms of human personality? Is that human cost, unmeasurable in terms of money, morally justified? The fact that industry produces greater output, more things, more wealth, at a greater rate is widely regarded as sufficient justification for mass-production methods regardless of the effect upon the human element, simply because human beings are not valued as God values them. The man who performs the single action, endlessly repeated, becomes depersonalized in the process. Work becomes drudgery, boredom. The individual becomes a cog in a machine as the direct result of the lust for more things and for more wealth. The human person, created in the image of God and intended for fullness of life, is humiliated almost to the level of a slave in the endless performance of a single mechanical act, even though he is adequately rewarded in terms of money; and the system is 'justified' on economic grounds! Our Lord respected human personality and asked great things of it.

Material inequalities among men have existed at all times in history, and there is little doubt that they will always exist. Men differ so widely in temperament and ability that it can hardly be otherwise. Industrialism as a system both emphasizes and aggravates such material differences quite needlessly. In simpler forms of society either the individual craftsman is self-employed, in which case the profits of his business are entirely his own; or the craftsman is employed along with a small number of other men in a relatively small business, the owner of which shares the work and the same general standard of living with his employees. In either case inequalities are not unduly pronounced. In the modern industrialized society the employee is one of thousands employed by the same firm. Among themselves they share the same general standard of living; but the employers, or body of directors, form a socially separate class, enjoying far greater wealth and living in a different district from their employees. The two classes meet only for bargaining purposes, and

that through representatives. It is not surprising that an atmosphere of distrust and envy has grown up through the years between organized labour and organized capital. It is true that the worst abuses which followed the industrial revolution have long since disappeared; but in far too many industries the spirit of distrust and envy remains. As long as the material inequalities remain so marked, and true personal contact between employer and employee is lacking, industrial unrest will continue and the sense of injustice will remain. Under such conditions the demand for higher wages on the one side, and for higher profits on the other, are in permanent antagonism. On all sides there is undue insistence on rights; disputes between unions on the question, which workmen shall perform particular operations of a borderline character; disputes between unions on 'differentials'. Hardly anywhere do we see the whole body of men who are engaged in a particular industry, owners and employees working together in amity in a common purpose. Ultimately the disunity in industry derives from material inequalities, real or supposed, and from a consequent sense of injustice, either real or imaginary. The material inequalities themselves derive from the vastness of modern undertakings, and from the wholly impersonal character of the relations normally existing within the industry. The industrialized society still has to prove that it is capable of working smoothly. Our Lord taught that motives are supremely important. We must therefore question the motives of all classes engaged in industry in the light of the Christian religion; and indeed the motives of the society which accepts the system. The only motive which can be fully upheld on Christian principles as a guide to the working life of the nation is service to our fellow men. By this yard-stick all classes must stand or fall. Where employer and employee are united in the common purpose of manufacturing a useful article for the common good of society, and in sharing the legitimate profits of the industry on a just basis, we have a right to expect co-operation and true fellowship. Wrong motives invariably break fellowship; and where the spirit of mutual service is lacking there is bound to be disunity, and worse.

The newest cause of unrest in industry is the introduction of the largely automatic factory or, as it is called, automation. This development is a logical outcome of the continued improvement in machines and other technical devices, notably electronic equipment. In the earlier stages of the mechanization of industry, machines were used to assist men. The human element was still necessary to control the machine. The machine, being unable to 'think', was used by the operator as a tool, albeit a highly complex tool. With the development of electronic equipment, which is capable of performing some of the more straightforward and elementary processes of thought, the human element is becoming redundant. No longer is one man necessary to operate one machine, but one man can control the working of a whole roomful of machines. Automation therefore requires a limited number of highly-trained technical personnel, but leaves little room for the employment of men of less ability and training. Men are thrown out of work and resentment is caused, in a manner strongly reminiscent of earlier stages of the industrial revolution, when rioters broke the machines which, as they saw it, had put them out of a job. The Luddite attitude, though generally regarded as misguided and unprogressive, is at least an assertion of an elementary right, the right to work. If by the introduction of automation adequate production of necessary goods can be secured for a large population with the additional advantage of much better working conditions for the average man, and with the peaceful absorption of redundant labour into other necessary occupations, good may result. But if justice is not secured for the workers, automation will bring untold evil. The right to work is an elementary human right, irrespective of the Christian religion. But more than this, the dignity of labour has been enhanced by the human labour of the Incarnate Son of God, Who has 'sanctified labour to the welfare of mankind'. For men to be denied work in a professedly Christian community, in the interest of automatic operation, is an unbearable scandal. The dignity of man as a child of God, as a member of the race to which Christ belonged, must be adequately safeguarded in all technological development. The Christian conscience can never con-

sent to men being thrown on to the scrap-heap as though they were outworn machines. If they are too old, or have not the ability, to find other work within the industry which they already know and serve, their reinstatement as workers in honourable employment of a different kind, and their training for such employment, should be recognized as a charge on the community. Christ died on the Cross to save mankind, among other things, from the evil of frustration. A community which is unmoved by the plight of redundant workers forfeits the honoured name of 'Christian'.

As we trace the development from the days of the working craftsman, in his cottage or workshop, to the emergence of ever larger industrial concerns, employing the methods of monopoly and automation, we cannot help being struck by the fact that industrial society is becoming increasingly top-heavy. Big business, cartels, monopoly (whether by individuals or by the state) place more and more power in the hands of the few. Automation demands more and more technically-trained specialists, and displaces the ordinary workman of average ability. Though apparently so different at first sight, monopoly and automation have this in common, that they tend to put power into the hands of the few (whether financiers or technologists) and whittle away the freedom of the many. Yet in society at large the few are always dependent on the good-will of the many. The demand for higher returns, both by owner and by employee, pushes up the prices of consumer goods. Society cannot afford the higher prices: yet it wants the goods, and will not forgo them. And so the spiral continues and the cost of living rises constantly. Nobody is satisfied, for all are infected by the same spiritual malaise; of which the symptoms are the desire for material possessions and the refusal to place the common good before immediate personal gratification. Viewing the whole trend of modern industrialized society in the light of the Christian religion, we are forced to ask, Are we heading for the complete collapse of the human 'machine'? The human machine, in which each man is a mere cog counting for little or nothing, has already replaced the integrated human society,

in which each individual could have an honourable place, and by his own efforts directly serve the good of the whole. Are we heading for complete collapse through the sheer inability of the 'machine' to work smoothly? If we are, and there are abundant indications that this is so, then the coming great collapse is nothing more nor less than the ultimate theological indictment of our whole industrial system. In a world which is God's creation, and in which the law of moral retribution operates relentlessly against those who forsake His ways, crisis, judgement, and collapse are inevitable. The Christian Church, like the prophets of old, has the duty to proclaim God's righteousness and God's warning in the most solemn way. But if the people will not hear, events can only move to their logical conclusion. Against the entrenched position and vast momentum of industrialized society, as at present organized, it appears to be almost impossible to make any real impression. Can there be any reform, any new heart, before the inevitable collapse takes place?

GOD, SCIENCE, AND HEALTH

As we have already remarked the increase in medical knowledge and skill in recent times has resulted in the cure of many diseases and conditions which previously would have proved fatal, and has roughly doubled the average expectation of life of western man. The incentives which actuate the entire work of the medical profession and its ancillary specialisms are the relief of human suffering and the prolongation of human life. Not only those directly concerned with medical practice but also research workers who are naturally less in the public eye are tireless in pursuit of these objectives, and often self-sacrificing in the cause to which they are devoted. While we must not lose sight of the fact that its earliest foundations are to be traced to the Greeks, yet the practice of medicine is recognizably a flowering of the Christian tradition. In its compassion for the suffering it derives directly from the healing work of Christ, and is a continuation of that work. Christ is the Lord of life. Restoration to health is His work; and He works today through medical care and skill to

continue the healing ministry which He began in the days of His earthly life. Increasing numbers of doctors recognize thankfully the part played by faith and prayer in their own healing work, and healthy co-operation between the Church and the medical profession is growing. In the missionary Church overseas, doctor and priest often work hand in hand. The healing of the body and the cure of soul are intimately bound together. As in the ministry of our Lord the healing of the sick is integral to and significant of the proclamation of the Kingdom. Moreover the Christian must always recognize that restoration to physical health implies a vocation to Christian service. Our life is very truly in God's keeping. The possibility of the more frequent cure of disease, through medical knowledge and skill, itself increases the opportunities of valuable service in Christ's cause, and makes possible the fulfilment of Christian vocation in ways which were not always possible previously. God seeks to use the knowledge and skill which He has given to men. The possession of a gift invariably implies the responsibility for its right use in the advancement of God's Kingdom. We should recognize therefore the immense part which medical science is capable of playing in the fulfilment of God's purpose for the human race; and both doctor and patient should consciously dedicate their new opportunities in their different ways to God's work.

It cannot be denied, however, that the advances in medical science and the improvement in public health raise difficult problems both of a practical and of an ethical nature for modern man. The conquest of disease and the consequent longer expectation of life are making themselves increasingly apparent in the new phenomenon of an aging population. If present trends are maintained, the numbers of people in the higher age groups can be expected to become very considerable. Undoubtedly some elderly people can continue to maintain themselves; but there are many who are quite unable to do so. The provision of an adequate number of homes for old people is already a pressing need. Such homes as exist are filled to capacity, and the majority of those admitted to them are completely dependent on the care of others. For some time at least we may expect the proportion of elderly

people to increase still further in relation to the working population on account of the fact that a period of relatively low birth-rate occurred between the wars. If the birth rate remains steady, and if there is no further substantial rise in the normal expectation of life, the distribution of population between the various age-groups will again become more balanced, though the former pattern will not be repeated. There is a tendency on the part of government departments to regard the problem of an aging population purely from the economic point of view. The maintenance of the aged is set against the earning power of those still in work; for of course whether the aged are living on savings, unearned income, pensions, or social provision, their actual maintenance at any one time is provided from the productive work of other sections of the population. There are people, therefore, who would urge that society cannot afford to maintain a high proportion of non-productive members, and that to attempt to do so inevitably results in a lowering of the general standard of living. However true the second half of this contention may be, we need hardly say that such an attitude betrays a thoroughly selfish and unworthy point of view, which is totally incompatible with the Christian way of life. Admittedly there is no justification for early retirement except in cases of ill health or real incapacity. If medical science has given better health and longer life, quite obviously the majority of people should continue in work to a greater age than previously, though not necessarily in the same strenuous occupations in which they have spent the earlier part of their lives. But once a person's health renders productive work an impossibility, a Christian society has a duty to provide for that person. The care of the aged is an act of love which a Christian society can neither withhold nor resent. If at a time when the normal balance of the age-groups is disturbed the burden of caring for the aged were to result in some lowering of the general standard of living, that burden ought to be shouldered willingly and in a Christ-like spirit.

The problem of the aged, however, is by no means a purely economic or sociological one. Fundamentally it is a theological problem, for this reason: The greater length of life which has

become common in modern times is secured by interference with the normal course of nature. By means of a surgical operation, or by skilful nursing, or by the use of new drugs, a person is given an artificial lease of life. People now living would often not have survived some serious illness earlier in their lives apart from such artificial interference with the normal course of nature. Now while we readily recognize that medical and surgical skill is God-given, and that its employment on a wide scale is generally in accordance with His will, the mere fact that we are interfering with the balance of nature places upon us a responsibility which can be discharged only in a *theological* context. Our wisdom as mere men may not be equal to our skill. It follows that there may be occasions when it is God's will that we should refrain from interference. It is not by any means certain that it is always right for instance to perform a surgical operation so as to prolong the life of a person who is already well advanced in years. A skilful operation may indeed prolong life for a few months, or even for a year or two. Sometimes it would be more true to say merely that the operation has postponed death. Often one is driven to question whether such postponement is of real value either to the person himself or to his family. In spite of all our scientific skill our wisdom is very limited. Most people have no adequate theology of death, which they continue to regard as a tragedy to be avoided and postponed for as long as possible. Most people have no clear conception of death as a rendering back of a life into the safe keeping of the Giver of all life. Therefore they fear to allow a person to die, even though they know they can do no more than postpone the inevitable, perhaps only for an insignificantly short time. But the essential question remains unanswered. *Should* the proposed operation be performed or not? Who can claim to decide such an issue? Neither the surgeon nor anybody else should be asked to decide; and yet, now that we possess the scientific skill, a decision one way or the other is unavoidable. For the surgeon himself, and it is on him that the onus lies, the question is insoluble—and at the same time inescapable. The surgeon who has the skill normally dare not refuse to use it; for no man as a private individual can dare

to be arbiter in matters of life and death. Sometimes, perhaps mercifully, the patient does not recover; or dies of post-operative shock. Sometimes the operation succeeds; and death is postponed for a few months. The question remains—settled in practice by existential decision—but unanswered in principle, because we have not the wisdom to know when to apply and when to withhold the skill which science gives. Has God's will been done, or has it not? We do not know. The responsibility of interfering with the course of nature in matters of life and death is a load which man is ill fitted to carry. It is part of the price which he must pay for his scientific understanding of nature.

Neuro-surgery in the treatment of mental disease presents us with a somewhat similar problem. For instance, in recent years an operation has become fairly common in which the frontal lobes of the brain are amputated or severed. The operation does not interfere with either memory or sensation, but the patient loses all power of initiative and all feeling of anxiety. It is therefore employed either in extreme cases of neurosis or in the case of those who are dangerously insane. Here the surgeon is not forced to be an arbiter of life and death; but the decision which he must make is almost equally daring. For quite clearly the operation in question radically alters the personality of the patient. Our Lord taught that personality is sacred. We have no reason to suppose that His cures of the insane destroyed their personality. Indeed, our Lord's cures restored personality to normal functioning. Neuro-surgery, however, renders the patient something less than a man. He is no longer the person whom God created. He is a tame docile creature, human in appearance and in outward behaviour; but in fact a kind of mental eunuch. Has man the right to use his medical or surgical skill in this way? To some people it may seem that pre-frontal leucotomy is justified in the case of certain dangerous or criminal types. But is it not too powerful a weapon to be placed in human hands? Without ultimate Christian restraint is it not liable to dangerous misuse? If the operation is to be permitted at all, should not the decision in each individual case be taken out of

the hands of the surgeon, and given to a properly constituted panel comprising representatives of the medical and legal professions and the Church? The matter is of a degree of seriousness not far short of the infliction of the death penalty. A decision should be taken not more lightly.

Moreover, I believe, any substantial interference with the normal sex-life of the individual by medical or surgical methods must equally be condemned. Artificial insemination, an interference of doubtful morality in the case of animals, is something utterly repugnant in the case of human beings. Sterilization of the mentally unfit, though one instinctively recoils from it, may conceivably be justified for the sake of the children yet unborn, though only under the strictest safeguards, and only by the consent of a properly constituted panel, as suggested above. Once again we must insist that science gives man power which in some cases he is unfitted to exercise. As a general rule, of course, medical research is of the utmost benefit to mankind—it is the means by which Christ's healing ministry can become more and more effective in the world of today. But the increase in medical knowledge and skill, which enables us to cure disease, is also capable of misuse in order to interfere unjustifiably with the sanctity of life and personality. We have not yet secured the necessary safeguards in law against the possible misuse of such medical knowledge and skill.)

THE NUCLEAR AGE

Advances in technology are closely linked with the discovery and development of new sources of mechanical power. Broadly speaking, there are three different methods by which mechanical power may be obtained from terrestrial agencies. The first, which was known of course to the ancients, is by harnessing the natural motions of matter on the large scale. The motion of the winds may be used to drive a sailing vessel; the motion of water to drive a mill-wheel, or more commonly nowadays a hydro-electric generator. Ignoring the fact that these large-scale movements of material are caused by the conversion of

2 thermal energy from the sun into mechanical energy by the earth's atmosphere, which in this respect behaves as a large but inefficient heat engine, we normally regard this source of direct mechanical power as something exceedingly simple and readily utilizable. It is the basis of all the earliest instances of mechanical propulsion either of machinery or of ships until the invention of the steam engine in the eighteenth century. The second method of deriving mechanical power is by the conversion of chemical energy of combustion into heat, and the subsequent conversion of the heat into mechanical energy by some form of heat engine. The invention of the steam engine made possible the opening of the so-called age of power, and more than any other single invention was responsible for the industrial revolution. The internal combustion engine and the jet engine, though very different in construction, fall into the same general class for the basic thermodynamical principle is the same. The source of energy in each case is the combustion of some kind of fuel: coal, petrol, or oil. The fuel undergoes chemical change during the process, being broken down into simpler substances, with the release of the binding energy between atoms. Many variations are possible within this second broad class of power sources. For instance, the power of an engine can be used to generate electric current, and so distributed to provide light or heat wherever required over a large area. Or the power of a chemical reaction may be developed so rapidly that we say that an explosion has taken place, the energy being used solely for destructive purposes. We are still living in the age of power; for by far the greater part of the energy we use is derived from chemical sources; but a new age with great possibilities has been opened by the discovery of the third method of deriving energy from nature.

This third method involves substantial changes in the nuclei of the atoms of the materials employed—still conventionally known as fuels, though there is no combustion in the strict sense. Two distinct processes are available for tapping the energy of an atomic nucleus. In atomic fission the nucleus of a heavy atom, such as uranium or plutonium, is rendered unstable by the absorption of a neutron.⁶¹ The nucleus then divides into two

large fragments (which become atoms of medium atomic weight) together with one or more neutrons (which may cause further fission on being absorbed by another heavy nucleus). Under suitable conditions a chain reaction ensues and very considerable energy is liberated. The total mass of the products of the nuclear reaction is appreciably less than that of the original nucleus, the difference being represented by the energy which is liberated. In atomic *fusion* two light nuclei (in practice, isotopes of hydrogen) are combined together at an exceedingly high temperature to give a single nucleus, again with the liberation of very considerable energy. Once again the total mass of the products of the nuclear reaction is appreciably less than that of the material which entered into the reaction, the difference appearing as previously in the form of energy. Both in fission and in fusion, under suitable conditions, a chain reaction takes place: that is to say, once the reaction has begun in a large quantity of material it proceeds without further assistance. In either case, unless controlled, the chain reaction proceeds with explosive violence; and both fission and fusion provide explosives at least ten thousand times more powerful than conventional chemical explosives. Nuclear fission certainly, and nuclear fusion possibly, if proceeding at a controlled rate, provide sources of heat energy enormously greater than sources employing conventional fuels; and can be used in a variety of ways to drive heat engines, and so to give useful mechanical power. The first point to grasp is that the potentialities of the nuclear age exceed those of the age of power by at least as much as the potentialities of the age of power exceeded those of the age of sails and water mills. Moreover, and this is the second point of importance, the products of either kind of nuclear reaction are highly radioactive; which means that the by-products of the release of nuclear energy are both immensely powerful, if rightly used, and immensely dangerous, if wrongly used.

Nuclear power and its by-products, the radioactive isotopes, are capable of improving the material amenities of life enormously. To quote only the most obvious instances, nuclear energy is capable of reducing the grime and drudgery of industry and of

bringing the benefit of cheap power to backward countries: and radioactive isotopes can be employed in the same way as radium, but on a far greater scale, for the treatment of malignant diseases. To those who have grown accustomed to the sheer dirt of modern industrialism and the blackening of vast areas with the soot of heavy industry, or by the smoke of the domestic fire, it comes as something almost unbelievable that the entire conversion of our modern society to nuclear power could result in a return to the 'green and pleasant land' of bygone days. Yet this is the sober truth. The large scale use of nuclear power is attended by its own peculiar problems, notable among which is the disposal of the waste products of atomic fission, which being highly radioactive are injurious to health. Experts believe, however, that such problems are not technically insoluble. The possibility of a nuclear reactor getting out of control is certainly a real one, as was demonstrated by the Windscale disaster of 1957, but it should not be exaggerated; for automatic methods of control largely eliminate the fallibility of the human element. The present programme of nuclear development, however, will do no more than supplement the use of coal; and it is highly unlikely, even on the most optimistic estimate, that any general replacement of conventional sources of power by the new source could become effective until towards the end of the present century. Nevertheless, the great nations are committed to the development of the nuclear power industry and the possible shape of future events is becoming discernible.

Great as are the potentialities of nuclear energy for good, the potentialities for evil are even greater. We have remarked already that the benefits of the nuclear age are but the by-products of a gigantic armaments drive. The uranium and plutonium bombs dropped on Hiroshima and Nagasaki in 1945 far outclassed anything previously conceivable in sheer frightfulness. Their power was reckoned in tens of thousands of tons of T.N.T. Thermo-nuclear weapons employing the hydrogen fusion reaction have since been developed with powers reckoned as equivalent to a million or more tons of T.N.T. The explosive violence of such a bomb is sufficient to lay waste the greatest of our cities. The

gamma-rays from the intense flash and from the cloud of radioactive particles would cause radiation sickness, extreme suffering, and slow death over a far larger area; and genetic effects on survivors which would be serious for the race for generations to come. Without seeking to paint too lurid a picture, we must recognize that quite a small number of such weapons would be capable of devastating an entire country and killing or maiming the greater part of its population. A nuclear war on a large scale would so pollute the atmosphere with radioactive materials that the complete annihilation of the entire human race would be a real possibility.⁶² In considering the ethical question of the development of nuclear energy for any purpose whatever, the magnitude of the disaster attending its possible misuse is a highly relevant factor. For it is emphatically not possible to have the benefits of atomic energy without accepting the hazard of its misuse on a disastrous scale.

We have argued already that scientific knowledge and the new power over nature which it gives are morally neutral. They can be used for good or for evil purposes, and in this respect nuclear energy is no exception to the general rule. The moral problem of the use or misuse of nuclear energy is therefore basically the moral problem of the use or misuse of any other development of a scientific or technical nature. The fundamental issue, as always, is whether we have the moral right to employ our powers and skills exactly as we like. Our conclusion was that there is always a legitimate use of scientific and technical developments; but that a greedy exploitation, or misuse for evil ends, is contrary to the principle of our trusteeship and to the revealed will of God. Guided by these general principles we should agree that there is nothing intrinsically wrong in making use of nature's resources of nuclear power for good and peaceful purposes. There is no essential difference from the ethical point of view between 'burning' uranium in an atomic pile, and burning coal in a domestic grate. The possibilities for evil of the misuse of nuclear energy so far exceed the possibilities for evil of the misuse of other sources of energy, however, that this particular ethical problem takes on a new complexion. A world

war fought with what are now called 'conventional armaments', though sufficiently horrible to be condemned by all Christian opinion as utterly evil, at least does not annihilate the whole human race and render the globe uninhabitable. Nations are weakened, millions of lives are lost, untold misery results; but human life goes on, and in time many of the ravages of war are made good. On the other hand a world war fought with nuclear weapons in all probability would leave neither victor nor vanquished, but a world uninhabited and devoid of life. It is beside the point to suggest that no nation in its senses would wage such a war. Once war begins restraints are thrown off. The annihilation of mankind is a very real possibility. Such an event would be a result differing not in degree but in kind from everything that had gone before. To that extent the nuclear age poses an entirely new moral problem. It does not follow by any means that we should answer it on the same lines as other problems arising from the use or misuse of scientific developments; for in this instance we cannot survive any large-scale misuse of our knowledge as we have done on previous occasions. There is as yet no general agreement on this entirely new moral issue. Some of us take the view that the attendant risks are such that mankind would have done better to have refrained from developing nuclear energy for any practical purpose whatever; that human nature is not to be trusted with a power so terrible. But as we have already remarked the vital decisions were taken without due ethical consideration, and with the sole object of defeating an enemy in total war. To go back now on the decisions once taken is virtually impossible. The nuclear age has dawned; and we must either live with our inventions or die by them. Mankind will proceed on the path it has chosen, but many of us are convinced in our hearts that a wrong choice has already been made, and are apprehensive of the final outcome. Having said this we must still face the moral issues of our time, knowing that the nuclear age has come to stay.

The principal world powers already possess nuclear weapons of various kinds. They have already made it clear that under certain circumstances they are prepared to use them. Supplies

of such weapons are constantly being increased. What is the Christian attitude to the use of nuclear weapons? Two different methods of employing nuclear weapons must be distinguished: their tactical use on the field of battle, and their use for obliteration-bombing of civilian populations, ports and industrial areas. The tactical use of nuclear weapons employs devices which are strictly limited in their destructive power. The reason for this is that an advancing army must eventually occupy the positions previously held by the enemy. To render the position totally uninhabitable over a large area would be to defeat the object of warfare between opposing armies. If therefore nuclear weapons are used tactically they are different only in degree from conventional weapons; and the morality of their use is in no way different from the morality of the use of conventional weapons. So far as tactics are concerned the issue of war and pacifism is in no way affected by the new development. That body of Christian opinion which has previously held that there are circumstances in which war is justified as the lesser of two evils will presumably raise no further objection to the tactical use of nuclear weapons. Christians who previously have adopted the pacifist view will still adopt that view. Whatever attitude may be taken to the tactical use of the new weapons, however, it is generally recognized by all Christian opinion, that obliteration-bombing in total war is in an entirely different category; and such methods have been universally condemned by the leaders of the Church. As compared with obliteration-bombing using normal high explosives the hydrogen bomb steps up the extent of the resulting destruction enormously; but provided the outcome is the devastation of large though limited areas, and not the annihilation of the whole human race, the morality of obliteration-bombing is strictly independent of the actual weapons employed. The annihilation of the human race would be a blasphemous attempt to frustrate the purpose of God.

Hoping that the use of nuclear weapons can be kept within limits, the nations of the world have not showed any real willingness to abolish them or to outlaw nuclear warfare. The hope is

widely expressed that the mere possession of such bombs by one nation will be sufficient to deter another nation from attacking it. In this way it is hoped that fear of possible retaliation will be a sufficient deterrent to prevent the outbreak of total war. Peace of a kind is preserved, and the great nations are left free to engage in a new kind of power-politics. Unless a radical change in outlook takes place it seems that the world will consist in future of a number of highly armed camps, at peace with one another only in the sense that they are not actually at war. But we must ask, How long can such a peace endure?

It is not enough for the Christian conscience to condemn obliteration-bombing and the use of the hydrogen bomb. The clear duty of the Church, and for that matter of all right-thinking men, is to work for the outlawing of obliteration-bombing and the abolition of the hydrogen bomb (which of course is quite useless for any other purpose). If we are to secure the abolition of the hydrogen bomb we are faced with the thorny problem of the adequate international inspection of a nation's armaments. No nation has yet shown any real willingness to abate its own sovereignty by one *iota*, yet without such abatement adequate inspection is impossible. So far all international conferences for the regulation of nuclear weapons have come to shipwreck on this one issue, and no appreciable progress towards true peace and international understanding can yet be reported. Politically the problem appears to be insoluble as long as the present state of distrust and mutual fear between nations is allowed to continue. We must recognize that the restoration of mutual confidence and trust is a spiritual goal; which consequently can never be attained by methods which are purely political. A spiritual goal must be approached along spiritual lines. At present the Christian Church is unable to speak on this vexed question with a single united voice. Some of its leaders are willing to advocate the continued possession of thermo-nuclear weapons, and even to countenance the possibility of their employment as an evil less than enslavement, relying on the universal fear of their use to prevent the outbreak of war, until such time as all nations can agree together to abolish them simultaneously under suitable

thermo-nuclear weapons not only unpractical but ethically unsound. It may indeed be suggested that to commit a nation to a nuclear armaments race, which could lead to total war and unprecedented destruction, is also to go beyond the moral obligations of a responsible government. Be that as it may, governments must decide. Therein lies their responsibility. They are not immune from criticism in either event. And it is at least understandable under present conditions that a government should interpret its duty to the nation as requiring that it should possess the means to defend its citizens, or to deter a potential aggressor. The profound difference of opinion on this issue, however, only serves to underline the weight of responsibility which rests upon our national leaders. A government must interpret public opinion. We have no right to demand even *limited* unilateral action, such as would inevitably involve considerable risk to the nation, until at any rate a majority of the nation are ready to endorse the policy and voluntarily to accept the risk. If even a limited repudiation of thermo-nuclear weapons by a government is to be either morally right, or practically effectual against the evil of the present situation, it must be the voluntary action of the nation as a whole. Christians must therefore work not so much directly to provoke particular governmental action as indirectly to influence deeply public opinion, which in its turn will both demand and support suitable action by government. The absolute necessity for some degree of unilateral restraint, however, must be urged on public opinion as the only course of action which can even begin to restore confidence between nations. Some one powerful nation must accept some definite restraint on its own power to wage modern war. The restraint must be accepted voluntarily, in the interest of what is morally right; and with the express purpose of showing trust, and therefore of engendering trust. And in adopting such a policy the nation must take a risk with its eyes open. To do this would be to apply our Lord's principle of the power of a love which does not fail. Nothing less can even begin to restore confidence. Even this might fail in the present evil situation. But a Christian nation is not thereby absolved

from making the attempt and from taking the accompanying risks.

If, however, immediate unilateral repudiation of the hydrogen bomb is too naïve as practical policy, what degree of voluntary restraint is called for, and how can the ultimate abolition of thermo-nuclear weapons be attained? It might be possible to move forward in stages; of which at any rate three may be suggested. (1) One powerful nation could bind itself by a solemn declaration that under no circumstances whatever will it be the first to employ nuclear weapons against any other nation. In making this declaration it would naturally reserve to itself the right to possess such weapons and to defend itself by means of them if attacked. In taking such unilateral action a nation would lay itself open, however, to surprise attack; but the effect of such a declaration could be to inspire trust and to bring other nations to bind themselves similarly. Not until all nations had advanced to this stage would we suggest that any one nation should advance to the next. (2) Some degree of trust having now been established there would be reasonable ground for hoping to attain a measure of actual disarmament with the necessary safeguard of international inspection. Again, however, unilateral action would be necessary to create the new degree of mutual confidence which is vital to success. One nation should again take the initiative, binding itself by a solemn declaration to reduce its nuclear armament to a stated level, and offering free and unfettered rights of inspection to any other nation. Once more a risk is taken; once more the full support of public opinion is required; once more an action which shows trust could inspire a new degree of trust in other nations and bring them to make similar solemn declarations, with the same conditions of inspection. In this way the goal of the second stage could be reached gradually, at which all the great powers, while still possessing relatively small nuclear armaments, allow free and mutual inspection to one another. (3) The final stage would be for one powerful nation to refuse either to manufacture or to possess hydrogen bombs and similar weapons, full rights of inspection being accorded still to all other nations. This is of course the final act of trust for which the

previous stages have been preparatory. As before it involves a risk; as before it must be the voluntary action of the nation, supported by public opinion; as before trust can be expected to inspire trust. The goal is reached when all nations bind themselves by similar solemn declarations, and allow, either to other nations severally, or to a specially constituted international body, full powers of inspection to make certain that the obligations are carried out. Needless to say, complete provision for future world peace would then necessitate a similar programme of progressive disarmament so far as other weapons are concerned.

To some people the proposals which we have tentatively outlined may still appear quite impracticable. We shall be told that we are living in cuckoo land. But what is the alternative? If the world remains armed to the teeth; piling up stocks of various types of nuclear weapons; living in fear of attack, and relying on fear for its safety; untrusting and untrusted; nuclear warfare on the vastest scale at some future date is almost inevitable. The outcome could hardly be other than the complete annihilation of the human race; or the mere survival of an impoverished, diseased, and genetically damaged remnant, eking out a meagre existence in a few oases which had escaped complete devastation. The choice before us is between trust and destruction; between life and death. The course which we have advocated involves a risk. Is the risk any worse than the inevitable catastrophe which must ensue if we refuse to take the risk and to trust other nations? If our trust is misplaced, the worst that can happen is annihilation, or perhaps the survival of a diseased remnant. If we do not trust other nations and proceed in stages to ultimate disarmament, that worst will happen almost inevitably (though perhaps not until our children's time). 'There were four leprous men at the entering in of the gate: and they said one to another, Why sit we here until we die? If we say, We will enter into the city, then the famine is in the city, and we shall die there: and if we sit still here, we die also. Now therefore, come, and let us fall unto the host of the Syrians: if they save us alive, we shall live; and if they kill us, we shall but die. And they rose up in the twi-

light, to go to the camp of the Syrians: and when they were come to the uttermost part of the camp of Syria, behold, there was no man there.'⁶³ We too sit in the twilight; faced by just such a decision.

LIFE OR DEATH FOR CIVILIZATION

We have now looked briefly at some of the major problems of the scientific age and their moral implications. The modern industrialized society is activated at its very roots by the desire for personal gain. The laws of economics are held to justify any development whatever. Human welfare in the true sense is sacrificed to the demands of mass-production. Automation is allowed to throw men on to the scrap-heap. The industrial machine which has been allowed to replace the human society, and in which each man is becoming gradually a mere cog, is in danger of collapse through its sheer inability to run smoothly. Though the scientific and technical developments of the past few centuries have enormously improved the material conditions under which western civilization lives, the net result judged on the spiritual level appears to be a species of industrialized society which is fundamentally at enmity with God and despises His ways. Medical and surgical research have resulted in the conquest of many diseases which previously afflicted mankind, and have given a vastly greater expectation of physical life to the majority of people. In these respects the medical profession of today continues the healing ministry of our Lord Jesus Christ; and many, in fact most, of the resulting changes in the conditions of life are in obvious accord with His will. But here again there are signs that scientific knowledge and skill are sometimes used in ways which attempt to thwart God's purpose for human life, or without due regard for the absolute sanctity of human personality. The nuclear age, with its promise of increased material amenities for mankind, brings with it a threat to our continued existence as a race. Man has created for himself a weapon of destruction which so far he has shown himself unable to control. Lack of trust and confidence between nations, which continue to

tolerate the piling up of immense stocks of lethal weapons, prevents any advance being made towards the attainment of true world peace. Man lives in fear, and vainly hopes to preserve his civilization by reliance on the deterrent effect of his own weapons of mass-destruction.

The various technical developments which we have been considering have become so much a part of our modern way of life that there is no going back upon them. What is already known cannot be forgotten by humanity as a whole. What is already technically possible of achievement will remain technically possible as long as the human race survives. We have to live with our inventions once we have made them. Only by a deliberate change of heart can we alter our attitude towards the new knowledge and the new technical possibilities; using our knowledge and skill only in accordance with the will of God, and refraining from misusing the powers which are ours. As yet there is little or no sign of that fundamental change of heart, though the dangers of our present course are becoming more apparent to responsible opinion.

Let us take a realistic theological view of the total trend of technological development down to the present time. From the very beginning of civilization every new discovery, every new power, presented mankind with a clear-cut choice. Either man could use the new knowledge or new power to the glory of God, guided by that innate sense of right and wrong which is his birth-right. Or, by misusing the new knowledge and new power, he could flout God's will and bring evil consequences upon the whole of mankind. Almost invariably he has chosen the latter course. Man is a fallen creature, self-centred, and rebellious. The evils of the modern industrialized society are no more than the logical growth of corresponding evils already inherent in the simpler society which preceded it. The spirit of unprincipled private personal gain and human injustice is no new thing. What is new is the technical knowledge and skill which have enabled them to flourish on an unprecedented scale. The evils of modern warfare are no more than the logical growth of the corresponding evils which have existed since the beginning of history. War-

fare and the massacre of the innocent are no new thing. What is new is the power to conduct warfare on such a gigantic scale, and at one stroke to annihilate millions of men, women, and children. Civilization stands under the judgement of God. His righteous judgement shows itself in the widespread evil which sin brings upon the sinner and the innocent alike. If the human race continues to ignore the law of God, as expressed in the life of Christ, it is doomed to extinction. Technical progress, so-called, merely serves to accelerate the movement of history. There are obvious signs that history is moving at an increasing rate towards its end in the final calamity which man is bringing upon himself. Time may be very short indeed. If man suffers complete annihilation in some future nuclear war on the world-scale, the act which precipitates the catastrophe will be but the last term of the series of acts of disobedience and rebellion against Almighty God which have marred the whole of human history.

But if we see the events of world-history from a Christian point of view, such an event would necessarily be more than final catastrophe.⁶⁴ The earliest Christians were taught to live in expectation of the 'end of the age', and throughout its whole history the Church has held the doctrine of the second coming of Christ in judgement. Biblical language is necessarily symbolic, or pictorial, as it seeks to express the end of history from within history. The doctrine of the Parousia has indeed received more than one interpretation, ranging from the crudest expectation of literal fulfilment to realized eschatology. Common to many interpretations, however, is the recognition that every crisis in human history is in some sense a second coming of Christ, both in judgement and in opportunity. It is by no means inconsistent with the general consensus of Christian theology that we should recognize the annihilation of the whole human race by man's own act, if this should happen, as constituting not only the final judgement upon human history, but in a deeper sense the second coming. That the occasion of the final consummation should be an event actually provoked by human sin is not inconceivable; indeed it is altogether coherent with the universal rule that of itself sin inevitably brings the wrath of God upon the sinner.

Human sin moving on a vast scale to the final repudiation of moral responsibility can be expected to issue logically in the final judgement of God upon a race which has always set itself in rebellion against His moral law. To suggest, as some have done, that God would not allow mankind to destroy itself is to deny the freedom which God has given. Granted the ability to wage war with thermo-nuclear weapons, granted also the fact of human freedom and the continued repudiation of the law of God, the end is logically inevitable. The one thing which conceivably can alter the present movement of human history towards its climax and ultimate judgement is the fact of Christ. The way of repentance is always open. The grace of Christ is always available. Even at this eleventh hour it is possible for humanity to turn round in its tracks, having seen the abyss, and to learn to control not only the power which modern science has put into its hands, but *itself*. It is the clear duty of the Christian Church, and of all right-thinking men who realize the danger, to spare no efforts to bring mankind to its senses. God's offer of salvation in Christ is still open to man. May he have the vision even now to grasp it, and to fulfil God's purpose for him on earth!

(The Church of Christ is the only possible source of moral leadership. Yet the day that finds civilization face to face with catastrophe, is also the day in which the Church itself is divided by that same sin which infects the whole human situation. Without any sacrifice of the deep theological principles which still divide Christendom, there is room for far greater co-operation and united witness by Christian people. What an indictment it is of the Church herself, that she should be found disunited and rent asunder with dissension just when her united witness is most needed! Can we not come together in Christian charity to set forth to the world the fundamental spiritual principles upon which we are all agreed, and to declare with a single voice the word of God to this generation? Still the world may be too engrossed with its immediate problems of industry and defence to hear; too concerned with its own immediate material prosperity to heed the voice of the Eternal. But 'whether they will hear, or whether they will forbear' at least 'they shall know that there hath

been a prophet among them'⁶⁵. A truly prophetic Church will take every opportunity to proclaim Christ's respect for human personality, Christ's emphasis on simplicity and voluntary restraint, and Christ's supreme stand for righteousness in the power of self-giving love.

REFERENCES

CHAPTER I

1. A. F. Smethurst, *Modern Science and Christian Beliefs*, Chapters 1, 3.
2. W. R. Matthews, in *Nature*, Vol. 177, p. 638.
3. E. L. Mascall, *Christian Theology and Natural Science*, Chapter 2.
4. C. E. Raven, *Science and Religion*, Chapter 1; *Experience and Interpretation*, Chapter 7.
5. A. Toynbee, *A Study of History*.
6. K. Heim, *Christian Faith and Natural Science; The Transformation of the Scientific World View*.
7. A. F. Smethurst, op. cit. pp. 3, 4. The quotation from Einstein and Infeld. *The Evolution of Physics*, is as follows:
 'We want the observed facts to follow logically from our grasp of reality. Without the belief that it is possible to grasp the reality with our theoretical constructions, without the belief in the inner harmony of our world, there could be no science. This belief is and always will remain the fundamental motive for all scientific creation. Throughout all our efforts, in every dramatic struggle between old and new views, we recognize the eternal longing for understanding, the ever-firm belief in the harmony of our world, continually strengthened by the increasing obstacles to comprehension.'
8. This question is treated in detail in J. Piaget. *The Child's Construction of Reality*.
9. G. D. Yarnold, *Christianity and Physical Science*, pp. 33-43.
10. The relationship between the physical and external worlds has been discussed in great detail by various writers, including Bridgman, Braithwaite, I. T. Ramsey, Toulmin, and Mascall. For a *resumé* and *critique* of the literature, see E. L. Mascall, *Christian Theology and Natural Science*, Chapter 2.
11. Somewhat ironically the periodical *Nature* used to carry on its cover the line, 'To the solid ground of nature trusts the mind that builds for aye'.
12. I. T. Ramsey, *Miracles*, p. 9.
13. C. E. Raven, *Experience and Interpretation*, p. 144.
14. Op. cit. Chapter 2-4.
15. W. Temple, *Christus Veritas*, pp. 3-5.
16. Col. 1¹⁷.
17. This point is discussed at length by Mascall, *Christian Theology and Natural Science*, pp. 135-138.
18. 1 Cor. 15²⁴⁻²⁹.
19. Ps. 99¹.

20. Rom. 8²⁰⁻²², 5¹⁴.
21. G. D. Yarnold, *Christianity and Physical Science*, Chapter 4.
22. Rom. 8^{22,23}.
23. Research in the natural sciences is still a truly religious activity, even though, as is often the case, those who pursue it may not profess the Christian, or any other, religion.
24. C. A. Coulson, *Science and Christian Belief*, p. 20.
25. Matt. 6²⁴.
26. The point of view advanced in this section was hinted at somewhat inadequately in *Christianity and Physical Science*, pp. 100-105.

CHAPTER II

1. A. Harnack, *What is Christianity?*
2. A. Schweitzer, *The Quest of the Historic Jesus*.
3. For a recent example of this tendency, see the otherwise valuable article on 'The Nature Miracles' by W. Neil, in *Expository Times*, 67, pp. 369-372.
4. E. W. Barnes, *The Rise of Christianity*, p. vii.
5. M. Dibelius (Trans. B. L. Woolf), *From Tradition to Gospel*.
6. E. Hoskyns and F. N. Davey, *The Riddle of the New Testament*;
- V. Taylor, *The Formation of the Gospel Tradition*.
7. R. H. Lightfoot, *The Gospel Message of St Mark*, p. 105.
8. In H. W. Bartsch, *Kerygma and Myth*, pp. 1-44.
9. The word has not quite the same flavour in the German as in the English. As used by Dibelius it does not necessarily imply that the story is fictitious.
10. G. D. Kilpatrick, *The Origins of the Gospel according to St Matthew*, pp. 7 and 139.
11. V. Taylor, *The Formation of the Gospel Tradition*, Appendix B.
12. H. W. Bartsch, *Kerygma and Myth*, p. 7.
13. Op. cit., p. 6.
14. Op. cit., p. 7.
15. Op. cit., p. 8.
16. Op. cit., p. 3.
17. Op. cit., p. 9.
18. Op. cit., pp. 10, 11.
19. Op. cit., p. 22.
20. Op. cit., p. 23.
21. Op. cit., p. 32.
22. Op. cit., p. 34.
23. Op. cit., p. 35.

24. Op. cit., p. 36.
25. Op. cit., p. 40.
26. Op. cit., p. 41. (*italics mine*).
27. Op. cit., p. 42.
28. Op. cit., p. 44.
29. M. Ramsey, *Charles Gore and Anglican Theology*, p. 10.
30. I. T. Ramsey, *Miracles*, p. 22.
31. Op. cit., p. 23.
32. C. H. Dodd, *The Apostolic Preaching and its Developments*, Appended Table.
33. 1 Cor. 15³.
34. Gal. 3¹³.
35. Acts. 1²².
36. Rom. 7²³.
37. Col. 2^{14,15}.
38. 1 Cor. 15¹⁴.
39. 1 Kgs. 17¹⁷⁻²³.
40. 2 Kgs. 4¹⁸⁻³⁷.
41. 2 Kgs. 4⁴²⁻⁴⁴.
42. 1 Kgs. 4²⁻⁷.
43. Matt. 4¹⁻¹¹. = Lk. 4¹⁻¹³.
44. Is. 55¹¹.
45. Lk. 4¹⁸⁻³⁰.
46. Is. 61^{1,2}.
47. B. S. Easton, *The Gospel according to St Luke*, p. 51.
48. e.g., Mk. 1²⁴, 5⁷.
49. Matt. 11²⁻¹¹. = Lk. 7¹⁹⁻²⁸.
50. John 1²⁹⁻³⁴.
51. Luke has just recorded the raising of the widow's son at Nain. Matthew has not.
52. Is. 29¹⁸, 35^{4,5,6}, 42⁷.
53. B. S. Easton, *The Gospel according to St Luke*, p. 101.
54. Mk. 3²²⁻³⁰, Matt. 12²²⁻³², Lk. 11¹⁴⁻²³.
55. Matt. 12⁴³⁻⁴⁵. = Lk. 11²⁴⁻²⁶.
56. Mk. 1⁸⁴.
57. Mk. 8³¹ and parallels.
58. Mk. 9³¹ and parallels.
59. Mk. 10^{33,34} and parallels.
60. Mk. 10⁴⁵ and parallel in Matt.
61. V. Taylor, *Jesus and His Sacrifice*, p. 86.
62. Op. cit., p. 101.
63. Op. cit., p. 105.
64. Mk. 12¹⁻¹² and parallels.

- 65. Mk. 14³⁻⁹ and parallels.
- 66. Mk. 14²²⁻²⁵ and parallels.
- 67. Is. 53¹².
- 68. C. R. North, *The Suffering Servant in Deutero-Isaiah*, p. 211.
- 69. Mk. 9¹.
- 70. G. Dix, *The Shape of the Liturgy*, p. 75.
- 71. Lk. 24²⁶.
- 72. John 10¹⁷.
- 73. Mk. 16⁶.
- 74. John 20⁸.
- 75. Acts 1¹¹.
- 76. John 20^{30,31}.
- 77. Matt. 5⁴⁵.

78. In a recent book, entitled *Risen Indeed*, I have attempted to present the truth of the Resurrection and of the appearances of the Risen Lord in a manner consistent with the thesis developed in this section, and with the object of bringing out their essential theological meaning.

CHAPTER III

- 1. Matt. 5¹⁷.
- 2. Gal. 3²⁴.
- 3. Rom. 7⁷.
- 4. Rom. 7⁴.
- 5. Rom. 10⁴.
- 6. The question of pre-existence does not arise. The creation of each individual cannot be dated earlier than the moment of his conception.
- 7. Ps. 144⁴.
- 8. Ps. 84⁵.
- 9. Heb. 2⁶⁻¹².
- 10. Phil. 2⁷.
- 11. Gen. 3⁸.
- 12. As a matter of practical moral theology it is undeniable that substantial advantage is gained by supposing the existence of a personal devil. Here, however, we are concerned with a theological theory of the *origin* of evil, which is quite a different matter. It does not follow that the same theory will prove satisfactory in both connections. Is this an instance of complementarity?
- 13. If this is a physical possibility. In the present state of knowledge it is an open question.
- 14. Mic. 6⁸⁻⁹.
- 15. Rom. 7¹⁹.
- 16. 2 Cor. 5¹⁸.

17. 1 Cor. 1¹⁸.
18. John 14⁹.
19. John 16¹³⁻¹⁵.
20. Lk. 2⁴¹⁻⁵¹.
21. Matt. 4¹⁻¹¹.
22. Mk. 12¹³⁻¹⁷.
23. Mk. 12¹⁸⁻²⁷.
24. Lk. 23³⁴⁻⁴³.
25. Lk. 15⁴⁻⁷.
26. Matt. 21²⁸⁻³².
27. Mk. 4⁹.
28. Mk. 11¹⁵⁻¹⁷ or John 2¹³⁻¹⁷.
29. Ps. 69⁹.
30. Matt. 16^{18,19} and John 20²¹⁻²³.
31. John 2²⁵.
32. John 6⁷⁰.
33. Mk. 10¹⁵.
34. Matt. 18⁸.
35. John 3^{3,5}.
36. Matt. 10¹⁶.
37. Matt. 20¹⁻¹⁶.
38. Lk. 12³².
39. Matt. 5⁵⁻⁹.
40. Lk. 6²⁰.
41. Lk. 12¹⁵.
42. Mk. 10²³.
43. Matt. 6²⁴.
44. Matt. 11¹⁹.
45. Matt. 6¹⁻¹⁶.
46. Matt. 5²⁷⁻³².
47. Mk. 7¹⁵⁻²³.
48. Lk. 18⁹⁻¹⁴.
49. Mk. 12⁴¹⁻⁴⁴.
50. Mk. 12²⁹⁻³⁴. Cf. Deut. 6⁴ and Lev. 19¹⁸.
51. T. W. Manson, *The Teaching of Jesus*, pp. 303-5.
52. John 15¹³.
53. Lk. 6^{27,28}.
54. Lk. 23³⁴.
55. John 1⁴.
56. Mk. 12¹⁷.
57. Gen. 2¹⁵⁻³-3²⁴.

58. A. G. Hebert, *Scripture and the Faith*, p. 25.

59. Matt. 6²⁴.

60. Matt. 4⁴. —

61. An electrically-neutral particle of approximately the same mass as an hydrogen atom.

62. That the possible annihilation of the human race is no far-fetched alarmist prediction should be clear from the appeal published in 1955 by Bertrand Russell over the signatures of eight scientists of international repute. The appeal states, 'No-one knows how widely such lethal radioactive particles might be diffused, but the best authorities are unanimous in saying that a war with H-bombs might quite possibly put an end to the human race. It is feared that if many* H-bombs are used there will be universal death—suddenly only for a minority, but for the majority a slow torture of disease and disintegration.'

63. 2 Kgs. 7³⁻⁵.

64. G. D. Yarnold, *Theology*, Vol. LVII, p. 292, 1954.

65. Ezek. 2⁵.

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